

# Clinical Medicine and Surgery

September, 1929

Vol. 36, No. 9

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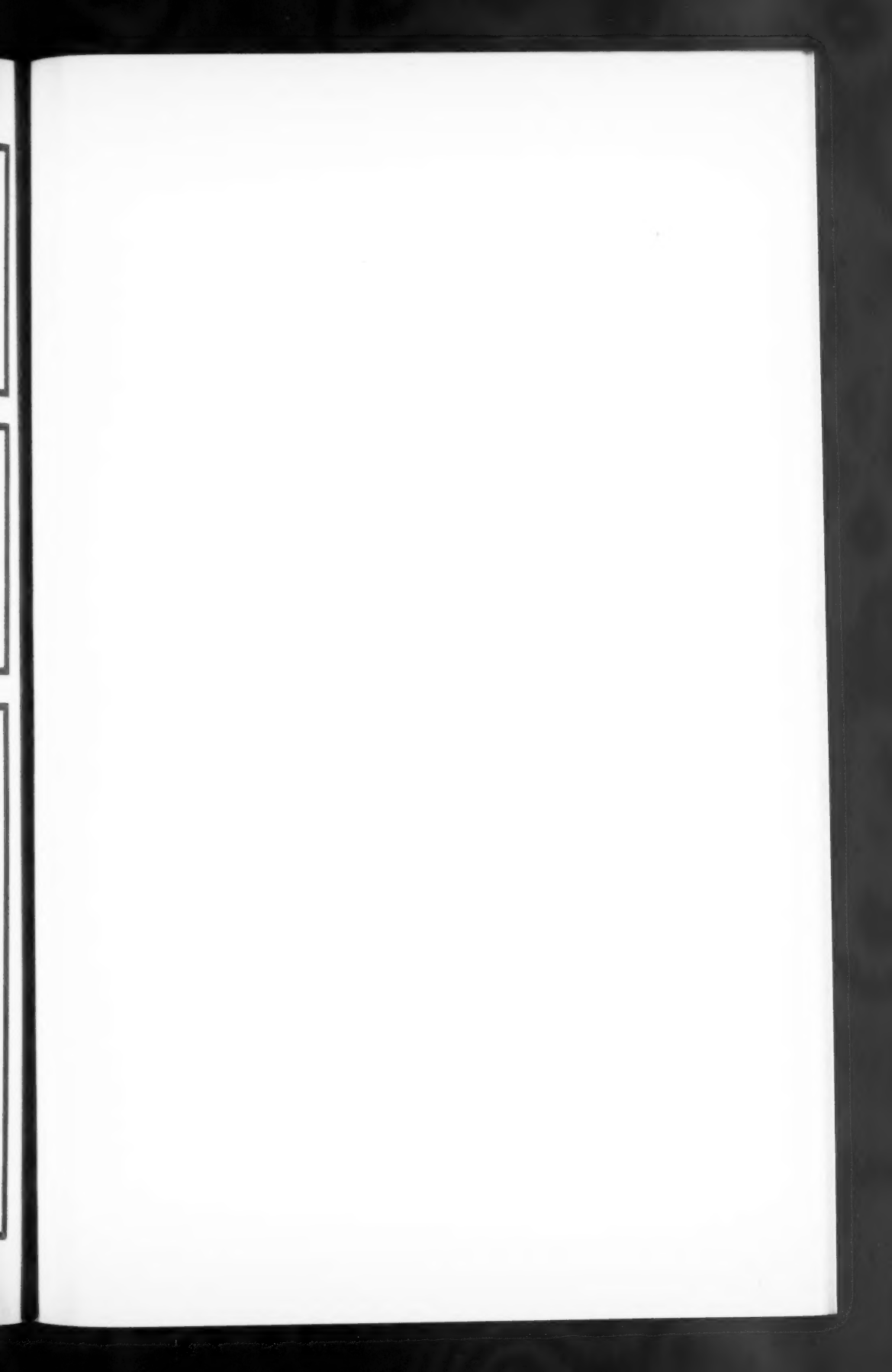
The need for protein is well understood as is also the value of mineral salts, which play such an important part in all metabolic processes. Carbohydrates are a real necessity, for life cannot be long sustained on a carbohydrate-free diet. It should also be stated that the predominating carbohydrate in the above food mixture is maltose—which is particularly suitable in conditions where rapid assimilation is an outstanding factor.

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NIELS R. FINSEN, M.D.



# CLINICAL MEDICINE AND SURGERY

VOLUME 36

SEPTEMBER, 1929

NUMBER 9

## Dr. Niels R. Finsen

**R**OBUST health is an asset whose value is only fully appreciated by those who lack it; but if the world were to be deprived of the contributions to human thought which have been made by the weak or even sickly members of our race, the loss would be irreparable. If, for example, Niels Finsen had been robust and rosy-cheeked, the development of actinotherapy might have been delayed for years.

Born December 15, 1860, at Thorshavn, the capital of the Faroe Islands, this frail Danish boy early learned to long for and love the sunshine. He watched the plants and trees grow green and strong in the sunlight and wondered why those life-giving rays would not also make him grow big and ruddy. This desire and the dreams it engendered, laid the foundation for his fame.

Finsen's early education was obtained in Iceland, but, when the time came, he was sent to the University of Copenhagen for his medical studies, and received his degree in 1890, immediately after which he was appointed demonstrator of anatomy at the University, which position he held for three years.

But his mind was filled with the vision of a new idea—*light could be employed to cure disease*—and so he gave up his work in the close and evil-smelling dissecting room, in order that he might devote every hour,

not filled by the demands of his practice, to the study of the physiology and therapeutics of the sun's rays.

Finsen soon showed his particular ability as an investigator and research worker and his skill in utilizing apparently unrelated experiments to further the knowledge he was seeking. His first article on heliotherapy—"The Influence of Light on the Skin"—appeared in July, 1893, in *Hospitalstidende*. In it he advocated the red-light treatment (which he called negative phototherapy) of smallpox—meaning the exclusion of all the *chemical rays* at the upper end of the spectrum—in order to shorten the treatment and prevent the distressing sequels which so frequently follow this disease. This was not a wholly new idea—it had been a folk-belief among the Japanese, for centuries, and was employed by several of the eminent magician-physicians in the Middle Ages—but Finsen was the first man to place it upon a scientific basis.

He continued his studies and observations and, having convinced himself that the chief biologic effects of sunlight were produced by the violet and ultraviolet (chemical) rays, he invented or adapted an apparatus for producing such rays in abundance and concentrating them—the Finsen carbon arc lamp—and, in 1896, established the Finsen Medical Light Institute, in Copenhagen, for

the application of this agency to the treatment of lupus, favus, ringworm and other diseases. The same year saw the publication of his best-known book, "On the Employment in Medicine of Concentrated Chemical Light Rays."

Finsen had, in large measure, the rare faculty of inspiring his students and co-workers with the ardor of his enthusiasm, and his influence soon spread far beyond the frontiers of Denmark and began to color medical thought all over the world. In 1903 he was awarded the Nobel prize for Medicine and \$40,000, half of which sum he at once turned over to the institute which he had founded.

But the visions which the eye of his mind had perceived he was not, in this life, to observe with his fleshy sight. For a number of years he had suffered from a valvular heart lesion, producing general anasarca and, after continuing to direct the affairs of the Light Institute up to within a few days of the end, he passed away on September 4, 1904—not quite forty-four years old!

A generation has come and gone since Finsen opened the world's first institution for the application of phototherapy, and we are only beginning to understand the immense potentialities which lie in this agency for the amelioration of suffering and disease. It will be well for us if we pursue our investigations with the energy and sincerity which animated the man who laid the foundations for the work we are now doing; and better still if we can catch a gleam of his inspired and inspiring foresight.

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Let us dream, gentlemen, then perhaps we shall find the truth—but let us beware of publishing our dreams before they have been put to the proof by the waking understanding. —Friedrich August Kekulé.

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### THE A. M. A. MEETING

THE Portland meeting of the American Medical Association, held during the middle of July, 1929 (an unusually late date), appears to have been a huge success from a recreational standpoint. It is a long time since the Pacific Coast has entertained

our great Association, and the Portlanders outdid themselves to make the occasion a memorable one. Unusual recreational activities were planned—such as bus trips to Mt. Hood and other towering peaks, a salmon barbecue, etc.—of which the visiting physicians availed themselves freely.

The occasion was seized by many to make a long-contemplated visit to our majestic, western wonderland, to Banff and Lake Louise, in the Canadian Rockies, and even to Alaska. Such outings are extremely worth while, especially for medical men, who have a strong tendency to get into ruts.

The attendance was not large—about 3,000—and a high percentage of those were men from the Pacific slope. This, however, had its points of advantage, as few of these western doctors attend the meetings held in the East, so that the scientific and technical exhibits reached a practically new audience.

We are informed that the various sectional meeting places were scattered over the city even more widely than usual. This is a great handicap to the man whose activities are not wholly in one specialty and who would like to hear outstanding papers in several sections. The Dallas meeting was the only recent one where everything was within easy reach of the man of diversified interests.

The House of Delegates unanimously chose that kindly physician and charming gentleman, Dr. William Gerry Morgan, of Washington, D. C., as president-elect, and Dr. Ernst A. Sommer as vice-president for the ensuing year. Detroit was selected as the meeting place for 1930. In the scientific exhibit, the gold medal went to Drs. Eugene P. Pendergrass and Temple Fay, of Philadelphia, for their presentation of encephalography.

We hope, next month, to present Dr. Morgan to our readers, and also to give them some notes from the sections, taken by a member of our editorial staff.

It would be a good plan to begin now to make plans to attend the meeting next

year Detroit has splendid clinical facilities to offer and has rather a reputation for entertaining visiting physicians right well. The Interstate Postgraduate Medical Assembly is to be held there in October (21 to 25), and that, too, is well worth taking in.

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The only difference between a rut and a grave is in the breadth and depth.—Dr. J. E. G. Waddington.

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### PROOFS IN PHYSICAL THERAPY

**T**IME was when any physician who was obtaining gratifying results from the various procedures which are now classed together as physical therapy, did one of two things: He either kept the whole matter strictly "under his hat," for fear the "authorities" would fall upon him and smite him hip and thigh, branding him as a quack; or he burst into the professional prints, presenting, with chortles of glee, one or two cases, treated empirically with galvanism, faradism, vibration, heat, or what have you—and the world marveled at his success and temerity.

Those halcyon days have been relegated to the limbo of the well-forgotten past. Single case reports of patients treated with ultraviolet rays, diathermy, static electricity and the other agencies in our present physical therapy armamentarium—except, of course, instances of rare diseases, new methods or new applications of old technics—are as much out of place as a suit of mediæval armor in a modern drawing room (if there are any of those things nowadays, which seems open to doubt).

Reports from some of the physical therapists now begin to read like those from certain of our famous clinics: "In our series of 11,746 recent cases of pelvic cellulitis, diathermy treatments were used in 10,324, the results being . . . etc., etc., etc."

Tabulations of statistics are terribly tiresome things, when they are read at a medical meeting or thrown on the screen with a projector, in a darkened room, where most of the individuals in the audience are, as the old woman said, "In the arms of Murphy."

But they serve an extremely useful purpose and are invaluable, when embodied in the literature, where students can consult them. It is only by the sincere and earnest consideration of large numbers of carefully kept clinical records, that one can arrive at valid conclusions as to the practical value of any therapeutic measure whatever.

The man with one or two clinical reports (unless conditions are exceptional) is practically out of court. There is, now, no dearth of material along these lines, and it is time for articles in which the results of physical therapy, applied in a considerable series of comparable cases and compared and checked, with adequate controls, should be presented for careful study.

Incomplete, ill-taken and undigested histories are also worthless, today. Those who read such articles want to know all about it, including full details of the technic of treatment and the results of a follow-up study, to determine the permanence of the good results reported.

Empiricism has a definite place in the art of medicine. Cinchona bark was used in malaria, willow bark in rheumatism and mercury in syphilis—and used successfully—long before we knew anything about the chemistry and pharmacology of quinine, the salicylates and hydrargyrum. Sometimes we must use drugs empirically, even now, but such a course of action is much less sound today than it was fifty or one hundred years ago. The chemists and pharmacologists stand ready to answer *almost* any question we have the knowledge and wit to ask. In fact, the progress of the basic sciences in medicine has far outrun the clinical application of the facts announced by the researchers.

Physical therapy, too, has grown out of its swaddling clothes. Empiricism was justifiable, in the days following the War, when thousands of maimed and crippled men were clamoring for the services of a system of therapeutics which was just being born. Not so now. The profession and the public demand *proofs*.

We would be the last ones in the world to glorify laboratory demonstrations as taking complete precedence over those made at the bedside; but what physical therapy needs right now is more sound laboratory reports, to explain and justify for us the faith that is in us. In fact, we need more *definite knowledge*, rather than more almost-religious belief and an enthusiasm tinctured with fanaticism.

Clinical reports are needed, too—the kind based upon the same type of meticulous and detailed observation and truly scientific and unbiased consideration as those which form the substructure of the articles given out by the laboratory workers. We need more facts and less guesswork; more critical judgment and less untrammelled enthusiasm; more painstaking diagnosis and less hit-or-miss therapeutics.

The time is now here when physical therapy must solidly establish its claim to a position as a mature and worthy branch of or adjunct to the practice of medicine; or slip back into the twilit quagmire of half-science and charlatanry, from which it emerged, ten years ago, to meet the needs of a world, half-distracted with the problem of the rehabilitation of the men who had been broken in the service of their countries and their ideals.

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Physicians give aid and comfort to the quacks and irregulars every time they attempt to make a diagnosis without the "laying on of hands."—Dr. G. Henry Mundt.

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### PROFESSIONAL COURTESY AND THE MACHINE

**I**N THE Middle Ages, before the professions, as we now know them, came into existence, there were groups of skilled workers, called guilds, banded together for mutual assistance and for the promotion of higher ideals of service and cooperation.

With the rise of our modern professions, some of that ancient guild spirit was carried over into them. In medicine, particularly, this feeling was encouraged, or almost enjoined, by the provisions of the Hippocratic

Oath, and was fostered by the old preceptorial system of medical teaching. The wise and able men who instructed our medical fathers and grandfathers taught them many things beside how to roll pills and concoct potions, and the stately and gracious figures who move through the annals of our profession may well serve as examples of conduct, in many ways.

When Dentistry took its place among the dignified professions—and even before that, when it was still considered a high-class trade—the courtesies customary between all disciples of Imhotep, Asklepios and Hippocrates were freely extended across the intangible boundary which separates these two branches of the Healing Art. And such conduct seems to us a worthy and gracious thing.

What effect will the present-day method of professional education by wholesale—grinding the students through a machine—instead of the older and, perhaps, less "efficient" system of personal instruction, have upon the coming generations of professional healers?

Here is a straw which may show how the wind is blowing.

A physician of some standing in the Midlands was studying one of the great eastern educational institutions when he discovered that a small, removable dental restoration which he was wearing required some slight repairs, which any dentist of his acquaintance would have been glad to make, as a matter of professional courtesy. Knowing that a famous dental school (described in our August issue) was part of the institution, he asked if these could be made there, and received an affirmative answer.

When the work was completed, he asked, as a mere matter of form, whether there was any charge for the service, and was told that his bill was *ten dollars*.

As this seemed excessive, in view of the facts that the school rather boasted of doing dental work at cost, and that his professional status was well known to all concerned, he asked for an itemized bill, which

showed \$4.00 for one hour's work by the dental surgeon; \$3.00 for one hour of a technician's time; and 27 cents for material; a total of \$7.27.

A high official of the institution, when asked why the \$2.73 (37 percent) was added, when they claimed to work at cost, replied that it was to cover the danger of accidents which *might* necessitate further expense for their correction. This seemed rather ridiculous, since no accident *had* happened and the doctor was leaving the city the next day, but the official assured him that there was no chance for appeal or modification, lest the workings of the machinery become obstructed.

The physician expected to pay for any materials used, and was perfectly content to remunerate the technician (who was not a professional man, but a skilled artisan) for his efforts; but was decidedly surprised that the dentist should charge for his time (which also seemed excessive, considering the work done) at the same rate charged any layman. As to the 37 percent "overhead," he still feels that it was entirely inconsistent with the claims of humanitarian ideals which this institution is making. This occurrence was not an isolated instance, but was found by careful inquiry, to be a settled policy.

If the price exacted for this service represents a reduction over that charged by competent dental practitioners in New York, for similar work, their fees must be several hundred percent higher than those of able men in other cities.

If every moment of the time of the professional instructors in this clinic must be paid for, so that they are not allowed to extend professional courtesies to their brethren in healing, it is obvious that, when one of these workers must answer a call of nature or slips out to the cloak room, during an unoccupied moment, for the solace of a cigarette, the next patient who occupies his chair must pay for the time so spent.

Of course, this may not, and probably does not, represent a general trend in modern professional education, but it surely points to one of the dangers inherent in "mass-production," as applied to human culture. It would seem scarcely possible that men trained under such a system could meet their patients with the same attitude of human sympathy as would be natural to those whose teaching had included a certain degree of flexibility and some words regarding the differences between a profession and a trade.

It is encouraging to find that this method of solving the dental problem does not meet with the universal and unqualified approval of influential members of the dental profession, as evidenced by an article from the pen of Dr. Joseph H. Kaufmann ("No Further Misstatements"), appearing in the *Dental Digest* for August, 1929, and an editorial and a rather striking cartoon in the August, 1929, number of the *Dental Outlook*.

As a personal experience of one individual, this little story is decidedly humorous: As a possible indication of tendencies in modern professional pedagogics, it deserves careful consideration by those who have such matters in charge.

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None goes so far as he who knows not whither he is going.—Cromwell.

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## ECONOMIC FACTORS IN PHYSICAL THERAPY

THOSE who have had occasion to employ the services of lawyers rather frequently are familiar with the idea of paying good money for that intangible stuff called advice. Those who visit the eminent specialists in the cities or who call in medical consultants, also learn that a qualified physician's opinion costs—and is worth—money.

The fact remains, however, that a definite majority of the people in this country feel that, when they go to a doctor, they

should receive something more than helpful suggestions—they want some medicine or something done to them—and they will pay good fees more readily if this yearning is satisfied.

Moreover, in writing prescriptions, one can never be entirely certain that they will be taken to the ethical and reliable pharmacist to whom they are directed, and refilling and self-medication are by no means unknown. This is not an argument against prescribing, which is growing steadily, as pharmacists and physicians are learning to cooperate more heartily; but it is a suggestion that, in addition to the remedial agents which are prescribed, the physician should give to each patient some form of treatment—parenteral injections, ultraviolet irradiations or what not—which cannot be obtained at the drug store. This is always good business and, in almost every case, it is sound therapeutics as well.

Physical therapy now offers a number of reliable and well authenticated agencies for the amelioration and cure of various disease states, and the conditions are few which cannot be helped by one or another of these methods. The physician, today, who refuses or neglects to include them in his armamentarium is doing his patients an injustice, and himself an even greater one.

Reliable physical therapy equipment costs a good deal of money; but so does an automobile, the rent of a good office and many other things which the doctor recognizes as being indispensable to sound practice. We do not look upon these disbursements as expenditures, but as *investments*. Viewed in this light, the money paid for the apparatus and instruction necessary for giving good physical therapy treatments will probably pay larger dividends than it would bring in if invested in any other way.

Not the only, nor even the chief, return from such an investment is the actual fees paid for treatments. The ability to keep patients under frequent and regular observation is invaluable; and the prestige which

comes to the well equipped physician, who *knows how to use his apparatus*, is an economic factor of immense import. Moreover, many people will readily pay cash for a consultation which includes a physical therapy treatment, who would otherwise have the item charged, and then be none-too-prompt in attending to the monthly statements sent.

The question, today, is not whether a physician can afford to equip himself and his office for administering physical therapy, but whether the nature of his practice is such that he can afford *not* to do so.

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All works of quality must bear a price in proportion to the skill, time, expense, and risk attending their invention and manufacture. Those things called dear are, when justly estimated, the cheapest.  
—Ruskin.

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### THE NEUROTIC PATIENT

**T**HE office of every general practitioner sees, from time to time, the anxious and unhappy face of one of those unfortunate individuals, too commonly alluded to, by many physicians, as, "Another damned neuro."

The chief reason why patients of this type are unwelcome in the offices of most doctors, and why they receive so little help when they do come, is that too few medical men, except psychotherapists, have any real understanding of the nature of psychic abnormalities or any true sympathy with the very genuine suffering which they entail.

We are sorry for the patient with typhoid fever, gastric ulcer or gall-stones; but we are prone to look upon the man who is afraid to go out alone in the dark as a spineless weakling, who deserves nothing but ridicule and a lecture on courage. And this in spite of the fact that the physical maladies just mentioned are much more likely to be the patient's own fault than are the various psychic disturbances.

The psychic patient *needs* understanding sympathy far more than does the one with an anatomic lesion. The latter can be appreciated by any layman, while the former

usually arouses pharisaical pity or cruel merriment among ignorant persons, thus causing the already too-sensitive person to retreat more and more within himself and shun the society of his fellows, which is so necessary if he is to return to a normal state.

Every physician should familiarize himself with the nature and manifestations of psychic disease, so that he can listen with intelligence and kindly feeling to the stories poured out by these patients. Being more sensitive than are psychically normal persons, they are promptly aware of the doctor's attitude. If there is no genuine understanding of their condition, *they know* it and they withdraw into their shells and wander elsewhere, seeking that help which they so sorely need and which is so frequently denied them.

Not every physician should attempt to treat emotional and mental infirmities—few are, in fact, capable of handling such cases successfully—but every physician should be able to study them with an unbiased mind and arrive at a sound diagnosis; whereupon they should be referred to a competent psychotherapist, to whom the family doctor can, if he will, give valuable cooperation.

Few of these patients need medicine. All of them need to be understood, encouraged and *reeducated*. Frequently this reeducative process must extend to the patient's husband or wife, or even to all the members of the family. It is a large contract, and should never be assumed except upon a flat-rate basis. If charges are made by the piece (call or consultation) it is rare that the sufferers will continue under treatment until results are obtained.

Here is an immense and little-cultivated field for professional endeavor, for such as have the patience, self-restraint and genuine love for mankind which are essential to the successful handling of these cases.

Here, too, is a duty which every physician owes to those psychic variants who may come under his care—to know about

them; to recognize them; and, if unable or unwilling to treat them himself, to direct them to someone whom he knows to possess the attributes and training necessary to help these poor castaways to arrive at the haven of peace and social efficiency.

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The fulfilment of life is the perfect poise of thought and emotion.—J. Krishnamurti.

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## THE LICENSE SCANDAL IN ILLINOIS

**W**HEREVER there are men who are willing to pay substantial sums for privileges they have not earned, there seem to be venal politicians who are eager to take that money, for a *quid pro quo*.

So long as people are so abysmally ignorant and careless of their health and lives as to employ the services of a quack in time of illness, thus long will these harpies use every hook and crook to obtain an opportunity to do malpractice upon them.

The shameful conditions recently discovered, in connection with the Department of Registration and Examination, of Illinois, have been spread abroad in the newspapers all over the country: How a gang of malefactors has, for years, been manufacturing, for very substantial sums, not only fraudulent licenses to practice medicine, but also forged diplomas to back them up.

The action of the legal authorities, in connection with this matter, has been delayed overlong, and, now that the crooks are being rounded up, there will be a tendency to sit back with a sense of gratification that something is being done.

Such an attitude would, however, be unwarranted in the circumstances. In too many cases, the prosecution of glaring abuses has been allowed to lag and fade away, because of sinister political and financial pressure, exerted through the underground channels which we all know to exist.

The attention of the medical profession should be riveted upon the mess in Illinois until the quack-makers are all in jail and a thorough housecleaning of the whole structure of medical licensure has taken place.

The prosecuting officials will not dare to falter in their duty, if they are closely watched.

It is probable, moreover, that Illinois is not the only state in which stinkpots could be uncovered by a sincere and zealous group of lid-lifters.

The only dependable protection for the childish and ignorant people who will put their lives in the hands of a self-seeking and avaricious charlatan, lies in the hands of the medical profession, whose members should, at once, initiate campaigns of impersonal education among the voiceless and superstitious members of their various communi-

ties, to teach them the value of healthful living and the grave dangers of taking a disordered human organism to an ambitious clodhopper or a crafty moneygrabber who has gained the opportunity to prey upon the public by means of a bogus license and diploma.

The only cure for ignorance—the mainstay of the quacks—is sound and valid instruction; and the logical people to spread this knowledge are the physicians.

The only prophylactic against political skulldruggery is the constant scrutiny of an aroused public; and the doctors are the ones to awaken those who sleep.

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#### PANHANDLED

*His coat was of no color and no shape,  
But down inside he looked well-fed enough—  
Perhaps 'twas dropsy. Anyway he walked  
As though his feet and legs were made of sticks.  
He asked me for a dime to buy some food.  
I always fear to let some fellow go  
Hungry, when I have cash, for I have been  
Hungry myself—but that was long ago.  
Just down the block a glaring sign said "EAT".  
I took him there and slipped into his hand—  
His slender, dirty, soft, prehensile hand—  
Enough to buy some coffee and a roll  
And strode along; but turned about to look.  
No sooner was I gone than out he came  
And shambled off in shapeless, furtive haste.  
He wasn't hungry; still, it might well be  
That someone at his house was in dire need  
Of what those coins could buy. In any case  
The fellow leads a cheerless life enough,  
E'en though, perchance, he has more cash than I.  
I had the joy of giving him a chance  
If he was hungry. If he was a "bum"  
That, I thank God, is his concern, not mine.  
I'll do the same thing every night this year  
Rather than let some hungry wastrel turn  
Empty and cold to bed for, recollect,  
I have been hungry—many years ago.*

G. B. L.

# LEADING ARTICLES

## Diastolization in Nasal Obstructions and Nasal Respiratory Insufficiency

(Method of Doctor G. F. Gautier)

By F. P. M. CLARKE, B.A., B.Sc., L.R.C.S., L.R.C.P., *Liverpool, Eng.*

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Liverpool Education Committee*

CONSIDERING the important researches and great advances that have been made in the different departments of medical science within the last two decades, it is surprising how little attention has been given to the subject of the treatment, apart from operation, of defects in nasal respiration and their far-reaching complications. Our leading standard textbooks on physiology and pathology give only a mere scanty, passing reference to the subject of nasal respiration and its effects. Standard works on rhinology, whilst giving detailed descriptions of well-known classical procedures in the treatment of certain nasal diseases, give too little space to the enormously important role played by the nasal organ in the true physiologic functioning of the body system, in general.

The very important part which nasal respiration takes in the efficient working, both mental and physical, of the whole organism can be fully appreciated only by a study of the remote effects which are produced, when there is any disturbance of the normal functions of this vital center. The ill-effects of defective nasal respiration, are frequently observed in other parts of the body.

This article is mainly concerned with the more common causes of nasal obstructions, the results and complications of these obstructions, and a rational method for their treatment.

### FUNCTIONS OF THE NOSE

It is important to remember three points about the nose:

- 1.—Its respiratory function;
- 2.—The part it plays in infections of the body;
- 3.—The controlling influence of the nerve-complex arrangement of the nasal mucous membrane over the smooth working of the brain and body.

1.—In its respiratory capacity, as the nose is the portal of entry to the air passages, it is obvious the important part it plays in pulmonary lesions, when its normal function is destroyed by any obstruction. In addition to being the portal of entry to the air passages, it serves an important purpose, from a physical point of view, in assisting the entry of air to the lungs.

During inspiration, air enters the pharynx in greater quantity than can be inhaled by the trachea in the same period of time. This interpharyngeal air, accordingly, maintains a certain pressure, which pressure, according to Mendel, facilitates the passage of air into the thorax and, therefore, materially assists the inspiratory act. During its passage through the nasal cavities the air is warmed, moistened and purified, before its entry into the lungs.

2.—The nose forms, in a way, the vanguard of all the passages leading to the chief thoracic and abdominal viscera

(Laurens). From this it is easy to understand the part it plays in infections of the body, arising by direct extension from one cavity to another (eye, ear, facial sinuses, etc.); by a descending infection, along the air passages and digestive canal; by inhalation and swallowing of purulent discharges. Chronic nasal disease is the primary factor responsible for many pulmonary affections, both in the child and the adult.

The role played by disease conditions of the nose in abnormalities of digestion is well known. It influences the digestive tract in two ways:

- A.—By a descending infection (swallowing of purulent discharges in cases of rhinitis, sinusitis, adenoiditis, etc.)
- B.—By a *simultaneous* infection, affecting viscera of the same histologic structure; for example, lymphoid tissue in the nasopharynx and in the closed follicles of the intestine and the appendix. Many cases of intestinal disorders are directly related to disease conditions of the nose.

3.—The whole nasal air passages are lined with a highly sensitive mucous membrane, exposed to congestive pressure, richly supplied with nerve filaments, glands and lymphatics, and opening on their surfaces are the orifices of the maxillary antrums, frontal sinuses, and eustachian tubes, whose regular, normal functioning is dependent on the healthy condition of these orifices and their lining membranes.

The great significance of the nerve-reflex phenomena of the nasal pituitary is, as yet, only partly understood. The influence of the trigeminal and sympathetic systems, not only in lesions of the nose, but also in ailments far removed from this situation, is becoming more widely known and appreciated. It has an enormous influence on the correlated functional energies (heart, lungs and endocrine glands) and, in its normal capacity, is a factor of prime importance in the regulation of the pulmo-pharyngeal dynamic system. The free circulation of air in the nasal cavities stimulates and excites the normal functions of the nasopharyngeal mucous membrane, in a way analogous to that produced by the passage of food on the digestive glands of the alimentary tract.

The lining membrane is disposed in the cavities in folds, in order to increase its area, and, in disease conditions, micro-

organisms frequently harbor and multiply in these recesses, and are a potential source of infection to the sinuses and to the middle ear, via the eustachian tube. Infection of the middle ear (*otitis purulenta*), arising from infections of the nasopharynx, is a frequent complication in children, in whom the eustachian tube is short, straight and wide at its orifice.

"Surgically, the nose is the best drained cavity in the body. Physiologically, it is the carbureter of the most economical engine in the world, making an equable mixture of air and steam and providing a constant climate for the lungs. It cannot but be that the free passage of air through the nose is physiologically important for the nice working of the brain, with which its circulation is connected. A consideration of the aprosopia caused by nasal obstruction and the stupefaction caused by a 'cold in the head', will convince us that intellectual inhibition is in a proportional degree due to nasal insufficiency. Put another way, no one can have complete use of his brain if his nose is out of order" (Gogarty).

#### MOUTH BREATHING

Nothing is more common, to anyone who has experience of rhinology, than the frequency of nasal respiratory insufficiency, with its resultant mouth breathing, and equally remarkable is the varied degree of tolerance with which this most distressing complaint is borne by different individuals.

Mouth breathing is a common occurrence and is found in all ages and in all classes. Only too frequently is this abnormal condition described as a "habit". Mouth breathing is often not a "habit"—it is a necessity. In the great majority of cases it is the result of obstruction to the free passage of air in the nasal airway, from whatever cause, and its treatment is the correction of this obstruction. While the nasal airway is free, nobody will breathe through his mouth by choice. Seek the cause! Stereotyped "exercises" for the correction of mouth breathing are useless.

Desfosses has shown that the majority of children of both sexes below the age of fifteen have an insufficient "respiratory output". I have examined over three thousand school children, of ages ranging from five to fifteen, with a view to determining the frequency of nasal insufficiency and to tracing the cause of this condition. The results are remarkable and are substantially in accordance with the findings of Desfosses. A general account of this enquiry, with the results of the treatment carried out in a large number of the cases, will be referred to later.

Before deciding on a method of treatment for nasal insufficiency, it is most important, first, to discover the cause. In infants and children the most frequent causes of nasal obstruction are acute congestion and infection of the nasal mucosa; extending to the naso-pharynx, with its lymphoid tissue, naso-pharyngeal catarrh is set up, as well as both simple catarrhal and hypertrophic rhinitis. These give rise to obstruction of the nasal air passage.

#### ADENOIDS

The development of adenoids, which is a common cause of nasal obstruction in infants and children, is a matter of great importance and interest. Many cases of mouth breathing in adult life can be traced back to infancy or early childhood. The true explanation of the presence of adenoids would appear to be that they are one of nature's defences against infection in the upper respiratory tract. In the course of the acute exanthems the child may develop an acute coryza or rhinitis, giving rise to congestion and infection of the naso-pharyngeal mucous membrane, with the result that nasal respiration becomes impeded. The child, perforce, has to breathe by the mouth. The nasal passages become more occluded as the tonic influence of the respiratory air on the pituitary is withheld, and, consequently, as a result of deficient drainage, the infection gets a deeper hold. Here the lymphoid tissue in the naso-pharynx hypertrophies, as nature's defense against the invading infection, and the final result is the production of adenoid masses in the naso-pharynx.

The more clearly we study the associated conditions of mouth breathing and adenoids, the more we are convinced that obstruction to the free passage of air in the nasal cavities was the original factor in the production of adenoids, rather than the general view, that the adenoids were the primary cause of the nasal obstruction.

But once adenoid masses have developed to obstruct the naso-pharynx, we are, of course, in a vicious circle.

It follows that the cardinal principle of treatment should be to establish and maintain a free, permeable nasal airway on the first signs of nasal congestion in infancy or childhood, whether arising in association with the acute fevers or a milder, nasal coryza.

#### NASO-PHARYNGEAL DEFORMITIES

Nasal respiration is also impeded as a result of certain skeletal alterations and deformities, produced in the framework of the naso-pharynx by prolonged nasal obstruction and mouth breathing developed in early life. The upper jaw remains contracted and becomes "A" shaped. The hard palate is greatly elevated and appears as if pressed inwards from side to side, assuming a resemblance to a Gothic arch. The teeth are irregular and overcrowded and the nasal septum is usually deflected, due to the upward pressure of the arch of the palate.

In adults, apart from deformities produced by traumatism, nasal respiration is obstructed or greatly reduced by deflections, or "spurs", of the septum or "hypertrophied ends"; pathologic lesions, such as polypi; and disease conditions (new growths) in the naso-pharynx. It is not with the treatment of these cases that this paper deals.

Cases of mouth breathing are occasionally met with, both in children and adults, in whom there is no obstruction to the free passage of air in the nasal cavities. They continue to breathe by the mouth even after the removal of tonsils and adenoids, as the difficulty in breathing through the nose was not due to the presence of the hypertrophied lymphoid-tissue.

In this connection the work of Pierre Robin is of great interest. He describes such cases as due to a disturbance of the normal "bucco-pharyngeal" function. When the patient is made to close the mouth, the tongue rolls back and down into the bucco-pharynx and causes obstruction. This condition he refers to as **glossoptosis**, and it can be easily recognized if the jaws are put into such relative positions that the superior incisors protrude over the lower, bringing the chin backwards and closing the lips. In this position breathing through the nose is embarrassed. The difficulty of breathing through the nose, in this case, is due, not to naso-pharyngeal impermeability, but to the falling back of the tongue.

The ill-effects, both mental and physical, resulting from deficient nasal respiration are too well known to need any special elaboration. Often the disturbances produced over the whole organism are so divergent and far removed from the seat of origin, that the real cause may be overlooked. Mouth breathing, which is an ab-

normal and imperfect physiologic act, giving rise to various mental, and physical ailments, is the most common sequel. General malaise, mental lethargy, defective speech, stammering, mal-development of the thoracic framework, with its influence on the vital organs (heart, lungs, etc.), defective hearing, anemia, loss of appetite, and "*aboulie respiratoire*", are only some of the more frequent effects of nasal respiratory insufficiency.

Nasal obstruction results in a diminution of the interchange of gases in the lungs, due to the abolition of the physiologic assistance which is present in normal nasal respiration. The respiratory movements which are shorter and more superficial, result in a limitation of the intake of oxygen and the discharge of carbon dioxide (Mink).

Common affections of the eye, such as blepharitis, recurring conjunctivitis, limitations of the field of vision, asthenopia, flimmer-scotomas, ciliary neuralgia and corneal ulcers, very frequently result from nasal obstruction. Ziehm has attributed these ocular affections to passive hyperemia of the orbital vessels, which anastomose freely with the vessels of the pharynx and nose. Defective drainage in the nasal cavities, such as occurs in obstruction, is also an important factor in the production and chronicity of these ailments.

#### NASAL BREATHING AND THE DIAPHRAGM

A study of the effects of nasal respiratory insufficiency on the action of the diaphragm is very interesting. Only a brief reference can be made to this important matter in this article. In connection with this subject, Dr. Genevoix, of Paris, than whom there is no greater authority on radiologic findings in this branch of medicine, has made a special study of the influence of nasal respiration on the action of the diaphragm. His results are remarkable and of great interest.

As is well known, the diaphragm is the chief agent of inspiration and of forced expiration. This alternating mechanism causes an even diffusion of oxygen over the whole pulmonary area; it vitalizes the residual air, has a massaging effect on the liver, and, by its suction power on the vena cava, assists the heart. In the presence of nasal insufficiency, this action is lessened, and the general metabolism of the individual is disturbed.

The action of the diaphragm is best

studied by means of radiologic examination. Dr. Genevoix, in his researches, has found that, during obstructed nasal respiration, the normal movements of the diaphragm are greatly reduced. He finds that the displacement of the diaphragmatic dome between inspiration and expiration, does not exceed 1 to 2 cms. The costo- or the cardio-diaphragmatic spaces do not open out. There is a definite weakness of the diaphragm muscle. When these patients take a deep inspiration (mostly by mouth), the effort is expended in a dilatation of the thoracic cavity, rather than in effecting a normal movement of the diaphragm. The movements of the diaphragm are slight. The muscle is in a state of semi-paresis. In the course of this weakness of the diaphragm, the abdominal viscera remain, during the respiratory act, practically immobile, instead of undergoing massage, which is an important physiologic action exerted by the play of a normally functioning diaphragm.

The radiologic appearances of the diaphragm are quite different when the nasal respiration becomes restored. The muscle gradually recovers its normal movement of expansion; the costo- and cardio-diaphragmatic spaces are opened and closed.

These interesting researches of Dr. Genevoix emphasize the important role played by the diaphragm in the regular functions of the abdominal viscera, and, in turn, that the normal action of the diaphragm is dependent on a healthy, normal nasal respiration.

#### HISTORY OF DIASTOLIZATION

In February, 1923, at the Academy of Medicine in Paris, Dr. Georges Gautier presented a new method for the treatment of nasal obstruction and nasal respiratory insufficiency, under the name of Diastolization.

As early as 1891, Dr. Gautier employed electrodes of copper in the treatment of nasal catarrh and atrophic rhinitis. Encouraged by the results he had obtained in dilating the nasal airway, he continued his researches on the effects of nasal dilatation in cases of nasal obstruction and nasal respiratory insufficiency. He designed instruments, accurately adapted to the shape of the nasal canal, to suit cases where nasal dilatation was possible. The instruments (bougies) were made of rigid gum-elastic, but later these were replaced by soft, hollow india-rubber bougies, dilatable

and capable of adapting themselves to the curves of the nasal canal. The bougies are made in various sizes to suit the different degrees of impermeability and calibers of the nasal fossae.

The use of these dilatable bougies of soft india-rubber, in the nasal canal, constitutes the new method of treatment, *diastolization*, in nasal obstructions, for the general restoration and re-education of the nasal respiratory function, and in certain cases of nasal neuroses.

The method is essentially biologic, and not merely mechanical, as one might be inclined to think.

#### APPARATUS USED

The apparatus used by Dr. Gautier in the practice of diastolization consists of:

A.—A set of five hollow *diastello-bougies*



Fig. 1.—1 to 5, Various Sizes of Bougies; A, Apparatus Complete, with Bulb and Adapter; B, Rubber Probe; C, Aero-Compressor.

(See Fig. 1), made of soft india-rubber, capable of being dilated, and, owing to the nature of their composition, adapting themselves to the tortuous passage of the nasal canal. The bougies are made in gradually increasing sizes, 1 to 5. Each is about 10 to 12 cms. in length, with a curve set at an angle of 30 degrees; the extremity is closed, cone-shaped and slightly flattened. In cross section its shape is that of an isosceles triangle, with the base inferior. Its walls are thin and allow of being easily dilated. The proximal end is larger; i.e., the bougie gradually tapers towards its distal, closed end.

To the proximal, open end is attached a pneumatic bulb (Fig. 1-A), with a suitable glass adapter acting as a connection. When the bulb is compressed, air passes into the bougie and dilates it, and when the pressure is relaxed the air comes back again to the bulb, in this way deflating the bougie. The bougie is made in accord with the natural contour of the nasal passage.

B.—Occasional use is made of a *naso-pharyngeal rubber probe* (Fig. 1-B). This type of bougie is on somewhat similar lines to the preceding, in length and curve, but in caliber is narrower, rounded, of harder rubber, and tapers at the distal end to a much finer point. It is of great service in the treatment of infants and young children, where there is great congestion and blocking. It is intended to get rid of the mucopurulent secretions which are dammed up in the cavum and nasal fossae.

C.—*Tube—aero-compressor* (of Gautier and Worms). This is an ingenious apparatus of great value in the treatment of nasal obstruction due to hypertrophy of the mucous membrane, in epistaxis, and after operation on the septum or turbinates. It acts by compression.

The apparatus (Fig. 1-C) consists, essentially, of very thin envelope of india-rubber, shaped to the fashion of the nasal fossa—a dilatable air chamber. Through the interior of this envelope is passed a stout rubber bougie, open at either end. This rubber tube is sufficiently stout to resist compression when the air chamber is filled. The air chamber communicates with the exterior by means of a short tube with a valve and cap, through which it can be inflated and locked. The principle of the compressor is to afford the necessary compression in the desired part of the nasal canal, while at the same time the patient can breathe through the nose—a great advantage over the ordinary method of "plugging".

D.—*Masque Manometrique de Pech* (or similar apparatus), to determine the coefficient of respiration and to control the results of treatment (Fig. 2).

Before and after use, the bougies are boiled for a few minutes and then rinsed in sterile water



Fig. 2.—Measuring the Respiratory Output with the Pech Mask.

#### TECHNIC OF DIASTOLIZATION

In carrying out the practice of diastolization, the physician may begin by measuring the respiration of the patient. This is done by means of the *Pech mask*, which enables us to measure, quickly, the exact respiratory output which is effected by a vigorous, deep respiration. (Full details of its use are supplied with this apparatus, Vaast, Paris).

Having noted the respiratory output, we then proceed to perform a thorough toilet of the nasal fossae and buccal cavity. For this purpose a mild, soothing, antiseptic, cleansing vapour is used, from an efficient atomiser. A very suitable agent for this purpose is Glycothymoline, diluted as required.

The diastello-bougie, sterilized by boiling, is now dipped in isotonic saline solution, avoiding the use of any oily lubricant, as this interferes with the special action of the bougie on the nervous mucous membrane; also, any form of local anesthetic is forbidden.

Begin with the smaller size, and gently introduce the distal end into the nasal fossa; gently compress the bulb (Fig. 3), which sends air into the bougie, dilating it and making it sufficiently rigid to pass up into the fossa as far as the cavum. While compressing the bulb, very slowly propel the bougie along the course of the nasal canal as far as the cavum.

Allow the bougie to remain in this position—dilated—for at least 4 or 5 minutes. Here it exerts a gentle compression on the soft tissues and renders its future action easier and more effective.

Next proceed to complete the diastolization by slow, in-and-out movements of the bougie, compressing the bulb (and dilating the bougie) on entry, and relaxing (and deflating the bougie) on withdrawal. This is repeated from thirty to forty times, slowly, in each nasal fossa, at each seance. The seance is repeated two or three times a week until 12 to 20 seances are given, according to the nature of the condition present. Our experience is that it takes this number to get the full value of a course of diastolization.

As the nasal passages become more permeable, gradually increase the size of bougie, always following with the larger size immediately after the smaller. Do not begin a seance with a size larger than that used last time.

A little practice and experience will give the nicety of touch necessary to carry out this delicate procedure effectively, and without discomfort to the patient.

The use of the bougie, when suitably selected, does not, usually, cause any pain. It is well tolerated by the majority of patients, and, surprisingly so, by even very young children.



Fig. 3.—Practicing Diastolization.

#### POINTS TO REMEMBER

- 1.—A thorough preliminary toilet of the nasal fossa, mouth and buccal cavity.
- 2.—On first introduction, leave the bougie, dilated, in position for 4 or 5 minutes.
- 3.—Slowly compress bulb and introduce very slowly into the canal.
- 4.—Avoid "rubbing" or forcing the bougie. Use a size that will pass in and out freely.

5.—Do not use any form of local anesthetic or oily lubricant; only isotonic saline solution.

6.—During the process of diastolization, the patient should keep the lips tightly closed and breathe through the nose.

7.—At the end of each seance it is also advisable to leave the bougie last used in position for 4 or 5 minutes. This helps the relaxation of the mucosa.

#### NATURE OF ACTION

By the slow in-and-out movements of the bougie in the nasal passage, which are effected at the same time as the alternating actions of distension and compression, we accomplish an ideal massage of the nasal mucosa, without undue pressure. When this maneuver is carried out with the lips closed, a valuable suction action is effected in the naso-pharyngeal cavity, acting particularly on the orifices of the tubes and sinuses.

The action of the bougies so employed is essentially biologic and dynamic. The permeability of the nasal canal is due to a retraction of the turgescent and congested mucosa.

The mode of action of diastolization is complex. The principle of the treatment is to restore to the tissues, by a biologic and dynamic action, their lost vitality, and to assist them to recover and to employ their natural defences against inflammation and infection, instead of destroying them, as is done by cauterizations, as well as by antiseptic lotions.

There are three important ends to achieve in the successful treatment of nasal obstruction and deficient nasal respiration. The first, is to establish a free, permeable nasal airway, and re-educate the regular function of nasal breathing, without destroying the living tissues; the second, to secure efficient drainage of the nasal cavities; and the third, to preserve intact, and re-invigorate, the natural sensibility of the living cells of the whole nasal mucous membrane, with consequent impaired reflex action.

Diastolization, suitably employed, will accomplish these objects.

The use of many medicaments, ointments and lotions, has an injurious effect on the tissues, in causing a coagulation of

the glandular secretions of the mucous membrane, and thus increases rather than relieves, the abnormal congestion.

Diastolization, on the other hand, tones up the mucous membrane and re-establishes a healthy circulation.

The use of the cautery is to be condemned: It kills the tissue and leaves scars and cicatrices, instead of living, healthy cells. It destroys the important nerve-reflex influence of the pituitary, and its use is often followed by serious neuroses. Such crude procedures only serve to convert the nasal passage into a mechanical tunnel, instead of a living, vital organ, capable of performing physiologic functions of the greatest importance.

In its operation, the diastello-bougie promotes a healthy circulation, through its vasomotor action. It diminishes the capillary stasis, and in this way relieves the turgescence of the mucosa. It clears away the stagnant mucous secretion, and thus relieves the glandular engorgement. The congestion of the nasal airway is reduced and natural ventilation of the passage is established.

It has a further important action on the richly-innervated, complex nerve network of the nasal membrane. This reflexo-therapeutic action, through the sympathetic system, is of primary significance to the healthy functions of the whole organism.

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# Physical Therapy in Surgical Practice

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THE importance and proper place, as well as the limitations, of various physical methods in the treatment of disease are growing subjects. When Massey wrote his ponderous volume on electrotherapy, a copy of which some of us still possess, he probably little realized how much of what he then discussed would be largely or wholly discarded in another thirty years. What we say today may need extensive revision in ten years time or even less.

In order to avoid, as far as possible, that which the future may see discarded, I have selected only those forms and methods of physical therapy which I have found useful in surgical practice after the first enthusiasm of the new has worn off.

Because of the necessary limits of a paper of this character, I have selected only a few outstanding methods. These may be divided into three groups: First, the physical methods useful in surgical preparation and surgical after care; second, the physical therapy treatment of surgical diseases; and third, the directly surgical forms of electrotherapy. I shall consider only the first two groups.

## PRE- AND POST-OPERATIVE METHODS

We have no need of any special preparatory treatment in the good risk, or even the average risk patient. It is only in the very bad risk cases, with much general debility, that any special measures are needed.

Hydrotherapy, in the line of vasomotor tonics, plays the largest part in the preparation of poor risk patients. For this purpose, where there is time for a few days or a week or two of preliminary treatment, I use local hot applications, such as the hot foot-bath and fomentations to the abdomen, chest or spine, combined with the cold mitten friction. It is repeated daily. This combined treatment so balances the circulation and tones up the blood vessels as greatly to lessen the dangers of vasomotor shock. Crile advocates the use of medical diathermy to the upper abdomen, especially the liver and kidney regions, and uses it while the patient is on the operating table. I have not resorted to it in this way, but use it as a

preliminary treatment, daily for a week or so before operation, where there is opportunity. It is, I believe, especially useful in cases where the non-protein nitrogen of the blood is elevated. Certain dietary measures are, of course, also indicated, but I shall not touch upon those here. The sun bath or general exposures to ultraviolet rays are also useful in lessening surgical risk in much debilitated cases.

In post-operative care similar measures are useful. In two to four hours after operation there is given the special, combined derivative treatment and vasomotor tonic of the hot foot-bath with fomentations to the chest and a cold mitten friction. This lessens lung congestion and is especially useful where ether has been used. Where nitrous oxide or ethylene is used exclusively, it is less necessary for the relief of lung irritation, but still useful as a vascular tonic. Diathermy to the upper abdomen or, in lung complications, to the chest, is a very useful measure. Post-operative bronchitis or pneumonia respond very readily to diathermy and the combined treatment of hydrotherapy.

In exophthalmic goiter, in addition to the preparatory use of Lugol's solution, I use the ice bag to the heart and the goiter, alternately, twenty minutes to each, continuing it all day, and daily during the preparatory period of one to two weeks. The cold mitten friction, without any accompanying heat, is also used once or even twice a day. The peculiar loss of blood-vessel tone in toxic goiter is remarkably changed by this means. Heat, of course, would make it worse and is contraindicated. In post-operative care, if there is much thermic reaction, the use of the icebag over the heart, almost continuously, is indicated; also the ice-cold compress to the chest, changed frequently (say every five minutes). Before the days of iodine surgical preparation, these measures, before and after thyroidectomy, were our main stay in reducing surgical risk and showed most satisfactory results.

The complications of surgical shock, in those greatly debilitated and, in all cases, the complications of post-operative pneu-

monia and phlebitis, are greatly lessened by the use of these means.

#### PHYSICAL THERAPY TREATMENT OF SURGICAL DISEASES

##### *Acute Infections of the Hand*

In addition to the use of all proper surgical principles in dealing with the acute infections of the hand, nothing reduces the extent, seriousness and duration of the infection like the **contrast bath**. Moist dressings or heat alone does not compare with the benefits of the hot and cold immersion of the part. Two minutes in as hot water as can be borne, and one-half minute in ice water, with the alternations continued for twenty to twenty-five minutes at a time and repeated from two to four times a day, is the technic I use. The entire hand and forearm, to above the elbow, are immersed. It is the most efficient stimulant to leukocytosis and phagocytosis that I know of. Twenty-five years of use have only strengthened my faith in this method as the most important adjunct to recognized surgical principles in hand infections.

I carry on the back of the middle finger of my right hand the scar of an infection acquired in surgical practice ten years ago. There were red streaks of lymphangitis extending to the axilla. Both before and after it was lanced these contrast baths were used about four times a day. If you have never used the method, do not fail to do so in such cases. It is also applicable to acute infections of the foot.

##### *Pelvic Infections*

Among these are pelvic cellulitis, pelvic peritonitis, salpingitis, pyosalpinx and the infections accompanying incomplete abortions and the puerperium. The general principle of the use of derivative heat with local cold, for direct or reflex depletion, is followed strictly here. You are all familiar with the use of the ice bag in acute appendicitis, but of course, you do not depend upon the ice bag for anything but temporary use. Operation is done at once. In pelvic inflammatory processes we all recognize that early operation is not the method of choice and may even be fatal. But the ice bag is not sufficient to accomplish what is needed. In these cases we have the acute, and later the chronic, stage of the inflammatory process, with a gradual passing of one into the other, so far as the pathologic conditions are concerned.

#### GENERAL PRINCIPLES OF TREATMENT OF INFLAMMATORY CONDITIONS

##### ACUTE STAGE

Conditions	Indications for Treatment	Treatment should Produce
1.—Arterial hyperemia .....	Limit congestion....	Depletion  (Reducing of congestion by simultaneous hot and cold).
2.—Increasing serous exudate .....	Cause absorption of exudate .....	
3.—Overplus of leukocytes .....	Energize leukocytes..	
4.—Bright red color .....		
5.—Pain severe and throbbing .....	Relieve pain.....	

##### CHRONIC STAGE

1.—Passive hyperemia .....	Stimulate circulation	Fluxion  (Production of arterial hyperemia by alternate hot and cold).
2.—Organization of exudate .....	Promote resolution..	
3.—Dearth of leukocytes .....	Stimulate leukocytosis .....	
4.—Dark red, dusky or bluish color..		
5.—Pain less severe, and dull.....		

The accompanying table shows the conditions, indications and methods for the acute and chronic stages of inflammations. In the acute state I use the copious, hot, vaginal irrigation, followed by the hot leg-pack, with an ice-bag to the pelvis, and concluded, in 25 or 30 minutes, by the cold mitten friction. This is repeated twice a day for a few days. The relief experienced by the patient needs to be seen to be fully appreciated. No other method gives such gratifying results. I use no diathermy in the acute stage, as it is liable to produce or increase pus formation. After a few days, the hot-leg pack, ice bag and cold mitten friction are used once a day only. As the more acute distress subsides, the simultaneous hot and cold applications are changed to alternate hot and cold, by means of fomentations and cold compresses or the ice bag. The hot vaginal irrigation is carried into the chronic stage.

As soon as the patient is able to be up the revulsive sitz bath is used. This is a hot sitz bath of 5 to 8 minutes duration, with a pour of a pail of cold water over the hips just as the patient rises from the sitz tub. It is given daily. When all active inflammation has subsided, pelvic diathermy may be given twice or three times a week. With the exception of diathermy in the chronic stage of pelvic infection, these methods have stood the test of over twenty-five years of use in

my own hands and nothing has, as yet, given benefit at all approaching them. Surgery may or may not be needed, and this must be decided entirely on individual conditions.

#### *Gonococcal Pelvic Inflammation*

The same methods of hydrotherapy used in non-specific pelvic infections may be used in Neisserian infection. The hot vaginal irrigations I use are of permanganate solutions, at the first. Very great benefit is obtained, but it is not so complete as in the others, since the infection lingers in pockets and recesses not reached by antiseptics and also in the deeper structures. Diathermy has added so much to the treatment that it may be considered the main stay. You are, doubtless, all so fully familiar with the work of Corbus and O'Connor and others that it is wholly unnecessary even to review it. The thermal death of the gonococcus under diathermy removes the causative agent and there is left only mixed infections and inflammatory exudates or adhesions, which are then to be treated upon the general principles laid down above or, in the end, by appropriate surgery.

#### *Other Inflammatory Conditions*

There are a number of physical therapy adjuncts to surgical practice of which we may not speak in detail. Mention may be made of a few of these that are really useful. They are of value chiefly in inflammatory lesions.

In acute and even in some chronic **sinus infections**, heat lamps, especially the Zoalite, are very useful and may be used for forty to sixty minutes, three or four times a day. Some cases of **acute mastoiditis**, in infants and children, may be aborted, so far as pus formation is concerned, by the use of the ice bag. However, as a general rule, the heat lamp or other hot application is of wider usefulness in mastoiditis.

After **tonsillectomy**, the greatest possible relief is obtained by the use of alternate hot and cold to the throat, by means of fomentations for five minutes, alternating with the ice bag for five minutes, with three changes each of heat and cold. It is not begun until the day after operation. This same treatment is useful in acute tonsillitis.

In **acute mastitis** with high fever, the continuous use of the ice bag aborts pus formation in some cases. In more moderate degrees of mastitis, alternate hot and cold with fomentations and the ice bag are much better and may obviate pus formation or help to localize the infection.

In **acute orchitis** and **epididymitis** the ice bag may be used at first, fifteen or twenty minutes at a time and repeated several times a day, with the moist heating compress between times.

Alternate hot and cold with fomentations and ice bag, 5 minutes each and with three changes, is usually most grateful after the first of the acute stage is past. The revulsive or alternate sitz and the alternate or revulsive perineal douche or up-spray is serviceable in the chronic stage. If there has been no suppuration, diathermy may also be used in the chronic stage.

After **hemorrhoid operations**, for the relief of soreness and pain, I use the alternate hot and cold applications, by fomentations and the ice bag, as mentioned before for other conditions.

#### USE OF AIR AND LIGHT

There is another group of conditions, mostly minor injuries such as cuts, severe abrasions, burns and also ulcers, in which exposure to air and ultraviolet rays is of great benefit. Such lesions heal much more rapidly by these means than when covered with occlusive dressings of macerating ointments. This is notably true of burns, where the customary forms of treatment develop infections and greatly delay healing. Ointments macerate and prevent the needed element of dryness in dermatization. Exposure to air and natural sunlight give this, and overdrying may be prevented by a few hours or overnight applications of the usual preparations for burns.

The exposure to sunlight or brief application of the air-cooled, mercury vapor lamp aids in the sterilization of the surface. As these means do away with surface moisture, the conditions for bacterial growth are also interfered with. Such methods may seem primitive, but the results in quicker healing fully justify their use.

Glendale Sanitarium  
and Hospital.



# The Value of the Electro-Thermic Cutting Arc in Surgery

By DISRAELI KOBAK, M.D., Chicago, Ill.

THE electro-thermic cutting current offers some outstanding advantages to the surgeon who concerns himself with the problem of cancer and the method of its most expeditious removal. Like all things that are thought to be new in medicine, it is at present accepted by the majority, with reservations. Its limited use by those most in need of it and the slow recognition of its certain superiority is due to the fact it is relatively a new development and therefore of unknown potentiality. The literature on the subject offers abundant evidence, however, that the method is far from new. Its specific cutting effect is based upon the utilization of the most orthodox principles of radio-physics.

Its development is traceable to the fundamental researches initiated first by Hertz (1888); to d'Arsonval's discovery of medical high-frequency currents (1891); to De Forest's modification (about 1907) of the Fleming tube, by adding a sieve-like electrode or grid in it between the hot and cold electrodes, and the production, by virtue of modified circuits of high-frequency currents, of sustained or slightly damped oscillations.

At the present time there are only two distinct circuits that go to make up the various so-called **radio-cutting instruments** offered to the medical profession. All of

these models depend either upon the inclusion of a De Forest type of thermo-ionic tube, which produces the sustained, radio-oscillating frequencies, or a high-frequency current that evokes, by virtue of additional condensers in its circuit, a relatively sustained oscillation of very high frequency. The latter "hook-up" is the most flexible for our purpose (Fig. 1), especially when it is combined with the well known improved d'Arsonval circuit, produced by the larger and more complete machines.

With these circuits we are able to obtain a relatively sharp and narrow, or a very broad and deep cutting effect. Sharp cleavage of tissue is obtained both from a De Forest, radio-tube type, or with a high-frequency type, but the deeper cutting phenomenon is obtained only with the latter current.

With the former instrument (Fig. 2) protoplasm is sharply split apart as the pointed scalpel is drawn through it. The tissues in contact with the arc electrode are sterilized by virtue of its heating properties. It cuts sharply, with minimum coagulation and maximum dehydration, and seals only the capillaries and very minute lymph vessels. It is not bloodless surgery, for bleeding may ensue. It is not diathermy in the strictest sense, because its cutting properties

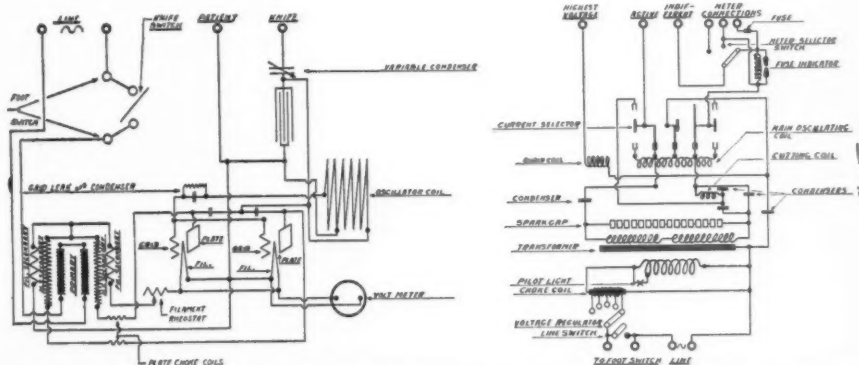


Fig. 1.—Plan of High-Frequency Circuit that Produces both the Typical Damped Oscillations, as from an Average Diathermy Machine, and the additional Condenser Circuit that produces Cutting Effects by virtue of Relatively Sustained Oscillations.



Fig. 2.—Portable High-Frequency Apparatus with Cutting Properties Only.

are due to the fine, film-like arc created at the point where the needle electrode is in contact with tissue. The voltage is very low and the frequency is relatively high. It is a biterminal hook-up, in contradistinction to the monoterminal hook-up, as with an Oudin or Tesla circuit.

This type of a cutting current, whether obtained from an extra-condenser, high-frequency circuit or from the radio tube, is limited in its use. It does not attain the full virtues of an ordinary scalpel in the hands of an oriented surgeon. In its broadest aspect, it is merely a spectacular method that illustrates in a somewhat parallel manner that the posturing of automatons may mechanically simulate the graceful attitudes of living subjects. It is a novel effect, recognized as such and demonstrated by Eitner<sup>1</sup> and Czerny<sup>2</sup>, about the same time, some nineteen years ago. Probably a more tolerant and just evaluation of this particular current would be to ascribe to it a limited virtue for the eradication of mild neoplastic conditions of small areas, particularly of basal cell origin, and benign growths of the skin.

#### THE HIGH-FREQUENCY KNIFE

My preference is for the cutting arc, as produced from high-frequency, extra-condenser circuits, which evokes relatively damped or unsustained oscillation. This is based on critical observation that extends over a period of years, and includes an operative experience in over 400 cases, wherein the cutting effect from both circuits was studied during and following operation.

In contradistinction to the type that produces purely sustained oscillations, we have, in this mechanism, the possible combination of both the virtues of diathermic coagulation and cutting currents. It cuts and, at the same time, produces a coagulation effect that can be varied in intensity with the need of the case. With this method we reach the highest plane possible of bloodless surgery. Tissue cleavage takes place very readily. Indeed, the surgeon operating by this method will experience, on his first attempt, a sensation of uncanniness, in that the scalpel passes into and through tissue without the least sensation of resistance. A sputtering noise is heard, which varies in direct proportion with the amount of voltage and the intensity of the current. A very fine arc or spark appears at the end of the needle or scalpel electrode upon contact with the protein material, which it disrupts or cleaves sharply apart.

The type of incision is definitely under the control of the surgeon. It can be as sharp as if made with a keen scalpel, or take on the appearance of an incised wound swabbed with a caustic drug. Bleeding, in the first instance, is negligible; and in the latter it is absent, due to the complete sealing of the small blood vessels, capillaries and lymphatics. A broad greyish line of coagulation is noticeable in the latter type of incision, while in the former it is merely of a film-like density. Healing here takes place by first intention, with no evident scar formation; while after using the heavier current, there is sloughing and extrusion of the coagulated material for about three weeks. In both instances the wound is thoroughly sterilized during the process of operation and, because of this, there is no need for meticulous preoperative sterilization of the wound, the hands of the operator nor the field to be operated upon. Worries of postoperative infection are therefore materially reduced.

Its superiority over any other known method is apparent. It is particularly indicated in malignant growths, where it is of paramount importance to protect distal parts from the invasion, through open blood vessels or lymphatics, of any cancerous cells that have been separated or dislodged by manipulation during operation. An additional protective wall against possible metastases is therefore set up. Postoperative shock is minimized, due to the fact that all of the nerve ends in the region of the oper-

active field are seared and capped by a film of coagulation. In fact, the entire field approaches the ideal state of anoci-association, so intelligently advocated by Crile. The patient is surprisingly comfortable after operation. Indeed, there is a spectacular cessation of pain, which is not usually associated with the treatment of malignant growths.

The removal of tissue for biopsy purposes by ordinary excision, several days before operation, is an obvious danger recognized by most of us and can now be overcome by utilizing the electro-thermic scalpel. A loop, made of special hard wiring (Fig. 3), is drawn over the suspected or affected

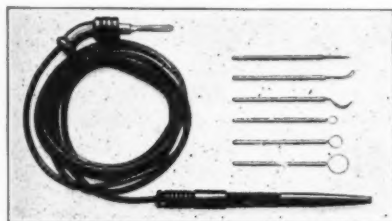


Fig. 3.—Active Cutting Electrode and a Selection of various-shaped Metallic Scalpels and Loops.

area and sufficient tissue is scooped out of the growth, without the usual bleeding. Therefore, the danger of opening small blood vessels and lymphatics is overcome and the patient is materially protected against distal vaccination from wandering malignant cells.

#### ANESTHESIA FOR ELECTROSURGERY

The question of the ideal anesthetic to be utilized in association with the high-frequency cutting current has been a troublesome one. Ether, because of its inflammability and explosiveness, must be used with caution, if nothing else is available. Under such circumstances the patient should be anesthetized in an adjacent room. The covering about the face must be changed and a moistened towel replace the etherized covering before the patient is brought to the operating room. Since the cutting arc is of minute size, the danger of ignition and explosion is minimized, especially if the foregoing precautions have been instituted. Ethylene is not to be considered, because of its high explosiveness. With the exception of its depressing qualities, chloroform is the ideal anesthetic because of its inexplosiveness. I have used it in the great

majority of my cases, without any untoward effect.

Local anesthesia is objectionable, unless it is used by the block method, under which conditions the results are extremely satisfactory. The real objection to it is the possibility of opening some blood or lymph vessels and thus creating an avenue for further dissemination of malignant material. Every precaution must be observed where malignant tissue is about to be manipulated.

Attention has recently been directed by Kime<sup>3</sup> to a new anesthetic, sodium isoamylethyl barbiturate (Somital), used intravenously by him in a series of cases, with good results. "In electrosurgical cases or in cases where the actual cautery is used, with danger of explosion, and especially in lesions about the mouth and head, this technic has given promise of great value," says Kime. Theoretically, such an anesthetic is ideal. It has the possibility of overcoming the three outstanding handicaps, herein frequently encountered; namely, cardiac depression, explosion and the opening of dangerous avenues from uncontrollable local bleeders.

#### ADVANTAGES OF ELECTROSURGERY

Its facile cutting properties, plus the protective zone of coagulation that is thrown out at the same time, places this method in the position of a future powerful adjuvant to modern surgery. Kelly<sup>4</sup> has indicated his enthusiastic adoption of this agent by stating that, "In old-fashioned, bloody surgical operations, commonly in vogue, I now begin to think with some revulsion of the messiness of the procedure, the sponging, the tying, the needling, and the general manipulations of the wound, which must contribute to so many bad results. I therefore welcome this new method of coagulation as a great addition to our technic, not only enabling us to do some things better, but greatly enlarging our field of beneficent activity. I give Wyeth's<sup>5</sup> sector the leading place and decided preference in my daily work, relegating the scalpel to a subordinate place." "These methods are not to be learned completely in a week or a year. They call for careful attention to a new technic, for discriminating judgment in their application and for increasing boldness with a growing experience. The concept is a new one."

Other surgeons who have investigated the electro-thermic cutting arc support the fore-

going opinion by the accumulation of favorable experiences. The work, with the cutting current, of John Anderson, Surgeon to the Royal Infirmary, Dundee, England, is cited in detail by Cumberbatch<sup>6</sup> in his scholarly book on diathermy. Anderson has employed the cutting arc electrode in over eighty cases of malignant disease of the breast. In all of these the entire breast was removed by him with this agency, except that portion adjacent to the large axillary vessels and nerves. Because of the twitch, which follows the introduction and interruption of the current near excitable tissue, it was deemed a necessary precaution to omit the use of the arc electrode near important blood vessels. Personal observation has taught me, furthermore, that this current is not effective for rough dissection purposes. It cuts too readily and has a tendency to destroy anatomical landmarks and lines of cleavage.

Anderson has found that healing as a whole is better than that which follows cutting with the scalpel and, in none of the cases seen at a later date, were there local recurrences. Cumberbatch adds to this observation the statement that, "It is not too much to say, however, that operation with the arc electrode marks a new advance in surgery, especially in that of malignant disease."

At a discussion on surgical diathermy, held at the Royal Society of Medicine in December, 1922, Gordon-Taylor<sup>7</sup> stated that he had used Anderson's method in a series of fifteen cases of malignant diseases of the breast. He affirmed that the patients made surprising recoveries; bleeding was negligible and readily checked; the length of operating time was considerably reduced; and the method held out considerable advantages over ordinary surgery with the scalpel.

At a symposium on surgical diathermy, presented at the seventh annual meeting of the American College of Physical Therapy, October, 1928, Bettman<sup>8</sup> stressed the superiority of the cutting arc electrode in intrathoracic surgery. During the same convention I demonstrated, at a surgical clinic held at the Cook County Hospital, the efficiency of the electro-thermic cutting arc in a series of malignant diseases of the mouth, lips and tongue. The operation, in all instances was speedier, bloodless and without shock. Experience has taught me that recovery is assured if metastases are not present. In the event of secondary involvements, this method offers the best palliative measure.

The growth is removed, pain is minimized and the patient is more comfortable than by any other measure.

#### TECHNIC

The technic utilized in all instances is a dual one: First, mastering the mechanical details associated with the instrument, such as the proper placing of the electrodes, the synchronization of the foot switch (Fig. 4)



Fig. 4.—Foot Switch Used to make and break Current, which must be Synchronized with the Electro-thermic Cutting Arc.

in the circuit with that of the application of the active, scalpel-like or needle electrode, the manipulation of both the current and the electrode to produce minimum charring of tissue, the proper removal of the active electrode following the breaking of the circuit; and, second, the acquisition of surgical orientation, which comes only with intelligent observation and wide experience. A well informed but timorous surgeon is as ineffective as a bold one who does not understand the mechanical principles at his command. Partial or incomplete removal of malignant tissue is productive of new growths, in the same vicinity and probably elsewhere. The objective in all instances is complete, even radical, eradication of the entire mass and all of the suspected adjacent tissues. The purpose of the operation is life saving, not cosmetic.

In the region of large or important blood vessels, it is advisable to perform a preliminary ligation. In operations about the floor of the mouth, the tongue or tonsils, ligation of the external carotid, lingual or tonsillar artery is indicated. This is a protective measure against hemorrhage. Similar steps must be taken in an anticipated hysterectomy, associated with malignant disease.

All of the incisions should be performed with the cutting arc, even that of the abdomen. The intensity of the cutting effect can be so regulated that healing will take place by first intention. The scar thus produced will be negligible, and no infection will follow from the wound, due to the sterilizing properties of the arc. Bleeding

will be minimized and the field will be the clearer for observation because of the absence of encumbering hemostatic forceps.

A similar technic is advocated in malignant tumors of the bladder. The loop electrode is the ideal scalpel in this operation. Usually the scooped-up malignant material clings to the end of the loop and is thus removed. The operation is clean, short and without shock.

Cushing<sup>9</sup> has recently reported his experience with this type of instrument in tumors of the brain. His enthusiastic endorsement of its value in such a difficult region is an index of its future adoption by other surgeons for other difficult fields. The messiness, bleeding and oozing have been a handicap which has deterred many a brilliant surgeon from approaching this surgical specialty. Cushing has found the electro-thermic arc-loop a valuable and bloodless measure to scoop or "shred out" inaccessible brain tissue.

The removal of small accessible neoplasms or benign growths with this agency is by far the easiest and probably the most sensible method that is at present at our command. Little or even no local anesthetic is required. Here again, I prefer the loop-arc electrode (see Fig. 3). The tissue is swept away with a single stroke. The speed with which small growths are removed is a spectacular demonstration of its efficiency. Its flexibility is as much a recommendation, therefore, as its bloodless, cutting and shock-reducing qualities.

In spite of the efficiency of this cutting current, it must not be presumed that in this measure we have uncovered a panacea

for the cure of cancerous tumors. The insidious manner with which these growths fasten themselves upon the unsuspecting patient and their metastatic dissemination, before any obvious symptoms can arouse him to recognize its presence, have made of this disease, in the absence of known biochemical tests, an entity that is regarded with hopelessness and dread by both the patient and the physician. The cure is questionable, in advanced types, because of its wide spread. Palliative relief is the only assurance that can at present be offered. With the greater publicity that is now given to this disease, the patient is now on guard for early and suspicious signs, and the physician who is able to recognize the early signs can now offer to these patients a new measure that is both protective and destructive. In the absence of any recognized specific, electro-thermic cutting surgery offers the best possible chance to those thus afflicted.

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The author is greatly obligated to H. G. Fischer & Company, Inc., of Chicago, for permitting him the use of their various cutting instruments.

30 N. Michigan Avenue.

#### SOME CAUSES OF DIVORCE

The average discussion about possible causes of the divorce evil neglect to go deep enough. . . . Discussions fail utterly as far as giving any information concerning the real cause of the majority of divorces.

As a psychiatrist of thirteen years' experience in every field of mental and nervous diseases, I am convinced that the divorce evil will never be eradicated until we develop a better understanding of our personality types and our underlying sex natures. We must recognize that, back of our love life, is the sex instinct or impulse and back of that the God-given creative instinct which is as old as life itself.—DR. J. R. ERNST, Detroit, in M.J. and Record, Mar. 6, 1929.

# Galvanic Acupuncture

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**A**CUPUNCTURE is a well-known method of treating painful neuritis and fibrositis. Needles are inserted into the region where the patient feels the pain. In the treatment about to be described, a special needle electrode is introduced and made one of the electrodes of a circuit containing a source of galvanic current. The electrode is inserted through certain spots on the skin, the situation of which is accurately located at a preliminary exploration of the skin by means of the sinusoidal alternating current. After the spots are located, the needle electrode is passed through one of them and connected to one of the poles of a galvanic battery. The circuit is completed by means of a simple pad electrode, and a weak galvanic current is allowed to pass for a short time. The other spots are treated in the same manner. The name "galvanic acupuncture" is suggested for the treatment.

The writer of the present communication did not devise this treatment. The originator was Dr. Naunton Davies, who practiced it for many years at Llandrindod Wells, a Spa in North Wales, Great Britain. His successor, the late Dr. Stead, demonstrated it to me some years ago, at St. Bartholomew's Hospital, London. I have practiced it on a number of patients, and am able to say that it possesses real value, because it has succeeded in some of the intractable derelict cases which have been referred to my Department. In a few cases it succeeded after all other physical therapeutic methods had been tried in vain.

Before discussing the mode of action of galvanic acupuncture in procuring relief of pain, the method of practicing it will be described. There is, first, the preliminary exploration; and, second, the introduction of the needle electrode and passage of the galvanic current.

## THE PRELIMINARY EXPLORATION

For the preliminary exploration we need a source of sinusoidal alternating current, an exploring electrode, an indifferent electrode and the necessary connecting cables.

The exploring electrode is a cone-shaped piece of metal, about three-quarters of an inch long and a quarter of an inch wide at its base; its apex is rounded. It is attached by means of a short length of metal rod to a wooden handle. A terminal is attached to the metal rod. The cone is covered with chamois leather.

The indifferent electrode consists of a metal plate about twelve square inches in area.

The sinusoidal alternating current can be derived from the main through a shunt resistance; or a small, rotary converter may be used. Its periodicity should be in the vicinity of 50 or 60. Only weak currents are needed.

Before making the exploration, the region where the patient feels the pain should be bared of clothing and the skin well moistened with hot saline solution. The indifferent electrode is applied to some other region of the body, say a limb, which is not the seat of pain. The metal plate is separated from the skin by means of a pad of absorbent material, soaked in hot saline solution. This pad should be slightly larger in area than the metal plate. The latter is connected to the source of sinusoidal current.

The exploring electrode is attached to the other pole of the source of sinusoidal current, and the chamois leather covering the cone is soaked in saline solution. The cone is laid on its side on skin adjoining the region where the patient feels the pain, and the sinusoidal current is increased until the patient begins to feel the "pins-and-needles" sensation which is customary when this current is passed through the skin. The patient must now be told that this sensation may change to one of pain when the electrode is moved over certain spots. He must be asked to give an indication directly he feels that the current is causing pain. The operator now proceeds slowly to move the electrode over the skin. If the case is going to be one suitable for galvanic acupuncture, the patient will feel a sudden change of sensation, from painless pins-and-needles to

painful stinging or burning, when the electrode reaches a certain spot or spots. The painful sensation will disappear with equal suddenness the moment the electrode is moved off the spots. These spots are quite small—not more than a quarter of an inch, or even less, in diameter.

One of these spots is selected—preferably that where the current evokes the most pain—and the operator proceeds to locate it more exactly and mark it by a dermatographic pencil. Two lines are drawn on the skin, one on each side, so as to give a rough indication of its position. These lines should include, not merely the painful spot, but a surrounding area of skin where the current evokes nothing more than the pins-and-needles sensation. The operator now places the rounded end of the electrode on the skin between the lines and moves it about until he finds the spot where the current evokes pain. He marks it with the point of the pencil. He now approaches it with the end of the electrode from all directions. If the patient gives the indication of pain when the electrode is in the same situation each time, the operator will know that the spot is correctly localized, especially if the patient is not observing the process of exploration.

Some patients say that they feel changes of sensation while the electrode is moved about over the skin, but are unable to decide whether the current causes pain in certain spots. Directly these patients see the operator marking a suspected spot, they are tempted to say they feel pain every time they see the electrode in contact with it. If they are now prevented from seeing it, the operator will often find that the electrode can be placed in contact with it without the patient giving an indication of pain. Such patients are unsuitable for treatment by galvanic acupuncture. It is wise, therefore, to prevent the patient from seeing the process of exploration. If he does not see it, but gives an indication of pain every time the electrode is on the same spot, the operator should proceed to perform the galvanic acupuncture.

#### PUNCTURE OF THE SKIN AND PASSAGE OF THE GALVANIC CURRENT

For the actual treatment we require a source from which to derive a galvanic current, a set of needles (active electrodes), an indifferent electrode and the necessary con-

ducting cables. The galvanic current may be derived from a battery of cells or any other convenient source. Weak currents alone are needed. The indifferent electrode is the same as that used during the exploration; it need not be removed from the patient. The active electrodes are spear-pointed needles. The shaft of each needle is covered with a thin layer of insulating material. It is attached to a suitable holder provided with a terminal for connection to the source of galvanic current. The spear-point is uncovered and its length varies from one-eighth to one-third of an inch in different electrodes.\*

#### TECHNIC

A few minims of a one-percent solution of novocaine (procaine) are now injected. The needle of the syringe is passed through the center of the marked spot, in a direction at right angles to the surface. The anesthetic is injected for a short distance below the skin. A needle electrode is selected. One with a short spear point is chosen when bone is close to the surface where the painful spot was located. If there is a considerable thickness of a soft tissue between the surface and underlying bone, an electrode with a long spear-point should be selected. It is passed along the channel made by the needle of the syringe until the spear-point is buried below the surface. Only the insulated shaft is in contact with the skin.

This electrode is connected to the negative pole of the source of the galvanic current. The positive pole is connected to the indifferent electrode. A current of one or two milliamperes is passed. The operator shifts the position of the electrode until the patient becomes aware of an increase of the pain for which he is seeking treatment. It may be necessary to increase the galvanic current a little. A certain degree of pain, stinging in character, will always be felt

\*The writer believes that the active electrodes originally used by Dr. Naunton Davies were made in Vienna, before the European War. The spear-points were made of platinum, and shafts were so firmly covered with insulating material that they lasted indefinitely. Electrodes of this kind do not seem to be obtainable now. The writer uses ordinary steel needles, four inches long, and covers them with an insulating enamel composed of a six-percent solution of black celluloid, dissolved in equal parts of amyl acetate and acetone. The needles are dipped in the solution, withdrawn and then suspended, so as to allow the enamel to dry. Next day the operator can scrape the enamel from the pointed end to the desired distance. The enamel does not stay on indefinitely, but it is easy to scrape it off and give the needle a fresh coating. It would be an improvement if the points of the needles were flattened.

at the point of insertion of the active electrode, but the latter is not in its correct situation until the patient feels pain referred to the whole, or a part, of the area in which it was felt before the treatment commenced. Directly he feels an increase of the referred pain, the electrode is maintained in the same position and the current is increased to a maximum of six milliamperes. The current should pass for a maximum duration of six minutes. Some patients are unable to tolerate this strength of current. Weaker currents should then be passed, and the duration of the treatment correspondingly increased. At the end of the treatment the needle should be withdrawn and a piece of adhesive plaster placed over the region of the puncture.

The patient is told to come again in three days' time. If pain is still present when he comes, the operator should repeat the exploration. If he locates another painful spot, he should treat it by galvanic acupuncture in the manner described and tell the patient to report three days later. During the process of exploration he will find that the active electrode can be moved on to the spots previously treated without causing pain, provided it was accurately located and the treatment properly conducted.

A fair amount of practice and knowledge of patients are necessary before successful results can be obtained by galvanic acupuncture. The main difficulty encountered, at any rate in some patients, is that of locating spots that are really painful when the sinusoidal current passes through them. In some cases there is no doubt whatever. In these the patient winces every time the exploring electrode moves over the same spot. In others the patient says, "Yes, that is causing me pain" when the electrode reaches a spot, but makes no remark when the same spot is reached from another direction. If there is doubt, the operator should regard the spot as unsuitable for galvanic acupuncture.

#### MODE OF ACTION

In regard to the mode of action of galvanic acupuncture in procuring relief of

pain of peripheral neuritis, I believe that it is akin to that of counter-irritation. If chemical irritants are applied to the skin, where the patient feels the most severe pain, it is not uncommon for the latter to be relieved. These irritants are nowhere near the inflamed nerve trunk, particularly if the nerve roots are affected. When the sciatic nerve trunk is inflamed the *nervi nervorum* of the sheath are involved and the pain is referred to certain skin areas. The reason why the pain may be relieved by applying irritants to these areas must be explained by the physiologist, but the clinician is sure of the fact, and he calls the treatment "counter-irritation".

Galvanic acupuncture seems to me to be a more elegant and exact form of counter-irritation. The chemical irritants are the caustic chemicals that are formed around the spear-point of the needle electrode during the passage of the galvanic current. They are formed in regions which are accurately located, presumably in contact with or around the cutaneous nerve filament along which the pain is referred to the surface. If this is the correct explanation, the treatment should be reserved for cases in which the cause responsible for the neuritis has ceased to exist. In actual practice it is found to be suitable for chronic ambulatory cases, where pain has persisted for long periods. Cases of this kind frequent spas.

It has already been mentioned that Dr. Nauntun Davies practiced galvanic acupuncture at Llandrindod Wells. I have practiced it at St. Bartholomew's Hospital, London, and although the frequency of success is lower than that claimed by the originator of the method, there is no doubt that galvanic acupuncture is a valuable form of treatment. Additional evidence of its value is furnished by the fact that it has been successful in some of the inveterate cases, where it was practiced as the last therapeutic hope. If it had been applied to all the cases of neuritis, without any preliminary trial of other methods, the proportion of successful results would probably have been much larger.

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# Progress of Physical Therapy in Otolaryngology

(A Review of the Recent Literature)

By A. R. HOLLENDER, M.D., *Chicago, Illinois*

A COMPARATIVELY large number of papers on physical therapy in relation to otolaryngology has appeared in the published reports of 1927 and 1928. It was quite evident in perusing these reports that much of the over-enthusiasm which was manifested at first, is now fairly well curtailed. This is undoubtedly due to the recognition of the fact that every therapeutic method has definite limitations. With the recent advances in light, heat, and electricity, and the efforts to rationalize their therapeutic application, there is an increasing tendency on the part of otolaryngologists to utilize some of these energies in the specialty.

Unfortunately, only a very small number of specialists have engaged in the investigational aspects of this newer field of treatment. Laboratory experimentation has been carried on only in exceptional instances. While clinical studies and experiences are sufficient to act as guides, basic proof in the laboratory always aids in gaining prompt acceptance. The period has now been reached when the clinical experiment must be supported by that of the laboratory. No specialty in medicine is so critical as otolaryngology, and, while clinical results with several of the orthodox procedures now being employed are inferior to what can be accomplished with physical therapy, recognition of this fact by otolaryngologists hinges on adequate scientific proof. For the present, clinical evidence must suffice and serve as the criterion, at least until the time when either the affirmation or negation of both the laboratory and the clinic is available.

## NASAL ACCESSORY SINUS DISEASE

Our attention is directed first to the efforts which are being made in the conservative treatment of upper respiratory infections. Tsionkas<sup>1</sup> has been led to apply diathermy in *acute coryza*. Cylindric electrodes are placed on the soft parts of the exterior of each side of the

nose. According to this writer, after the treatment, the respiratory difficulty disappears and sneezing ceases. Patients cured by diathermy, who before that suffered intensely from coryza at each change in temperature, seemed, after the treatment, to be almost refractory to that affection.

Brooke<sup>2</sup>, who has had a considerable experience with physical therapy of nasal accessory sinus diseases, contends that the early use of diathermy for sinus disease frequently is successful before the involved structures are irreparably damaged. Favorable results have been reported also by Kelsmortel<sup>3</sup>, who states that operative interference can be avoided in sinusitis frontalis by the use of the high-frequency current. This causes a drainage of the stagnating pus.

Hollender and Cottle<sup>4</sup>, emphasize the idea that, whereas classical measures are often of value in the treatment of sinusitis and surgery must be resorted to for radical procedures, conservative methods merit a trial in numerous instances. In acute sinusitis, radiant heat-light to the head and face, or indirect diathermy over the sinuses, relieves the acute symptoms and frequently obviates the use of analgesic drugs. In subacute and chronic sinusitis, uncomplicated by other disease, direct diathermy, properly applied, has proved satisfactory and represents a decided advance in sinus therapy.

## CHRONIC OTITIS MEDIA

In discussing the subject of impaired sound conduction, Linn<sup>5</sup>, points out that the generally recognized and dependable procedures are always to be instituted and sanely followed up and that diathermy is always to be regarded as an adjunct to such methods. Faulty hearing caused by many conditions, among them otosclerosis, may be made worse by diathermy. Linn follows diathermic treatment of the middle ear with the surging sinusoidal current, for

the very evident benefit that must result from electrically and forcibly induced contraction and relaxation of the musculature of the middle ear and the tube.

McKenzie<sup>9</sup>, states that treatment is still in the experimental stage, but experience with it has been so unexpectedly favorable that he has no hesitancy in recommending it to the attention of otologists as by far the most promising of all the recent plans proposed for the alleviation of "dry deafness".

Hollender and Cottle<sup>7</sup> call attention to their experimental studies previously reported, which attempt to establish an anatomic basis for the improved method of diathermic application for chronic catarrhal deafness. They employ the audiometer as an aid in diagnosis and for checking progress of patients under treatment. They stress the fact that physical therapy is of no avail in otosclerosis and nerve deafness. Catarrhal deafness which resists orthodox methods, frequently responds favorably to diathermy when this treatment is added to such other local and systemic measures as may be indicated.

#### SUPPURATIVE OTITIS MEDIA

The use of zinc ions for the treatment of chronic suppurative otitis media cannot be advocated for every phase and form of that disease, according to Warwick<sup>8</sup>, who emphasizes the limitations of the method. This same author is convinced that the so-called ionization method is a valuable adjunct to our armamentarium for treatment of suppurative otitis media, and that it will find greater favor among progressive otologists when they have informed themselves of the principles underlying the theory and practical application of the method.

Wahrer<sup>6</sup> contends that radiant heat plays an important part in the treatment of acute purulent otitis media, because it renders medication more effective and has a decided sedative action. In the chronic disease, patients should be given the opportunity for cure by medical treatment. Results in these cases are largely due to the drainage promoted by suction, and the dehydrating and germicidal action of radiant energy. Another method employed by Wahrer, in selected cases, is zinc ionization, according to the well recognized principles for this therapy.

Hollender and Cottle<sup>7</sup>, call attention to a selfretaining ear speculum which they have devised for zinc ionization treatment

of chronic suppurative otitis media. They comment to the effect that, in cases of tympanic sepsis, treatment by ionization alone is sufficient, especially so if the perforation in the drum membrane is large enough to allow the introduction of the zinc solution and its distribution in sufficient amounts.

#### THE TONSILS

The radium treatment of tonsils is suggested by Williams<sup>5</sup>, who argues that the method is safe and efficient and not subject to the complications that may accompany or follow operation. Radium has a wider field of usefulness than that covered by tonsillectomy, in that it can be employed for patients who are not good operative risks, and, what is also important, for treating diseased lymphoid tissue in the pharynx and other parts of the throat.

Dillinger<sup>3</sup>, is of the opinion that x-ray and radium methods for tonsil destruction have been found wanting. He advocates electrocoagulation. There are large numbers of diseased tonsils that cannot or should not be treated by tonsillectomy, such as those of patients having hemophilia, tuberculosis, nephritis, heart lesions, syphilis, etc., and there is a tremendous number of adults with diseased tonsils who refuse operation. If, according to Dillinger, electrocoagulation was used only in this large group of cases, it is a method that we should be extremely happy to welcome.

This view is acquiesced in by Corbett<sup>4</sup>, who believes that the results, local and systemic, following the use of electrocoagulation are just as effective as those obtained by surgical tonsillectomy, and that, in the high-frequency current, we have a very valuable adjunct to surgery in the treatment of diseased tonsils.

A new instrument, a simple modification of the Beck-Schenk tonsillectome, is suggested by Hollender and Cottle<sup>7</sup>, for the enucleation of tonsils with electrocoagulation. Buff's method involves the use of a similar instrument, with a slightly different technic. The advantages of this procedure over "step-by-step" coagulation are many, the chief one being complete enucleation of the tonsil at one sitting.

Cahall<sup>10</sup> condemns electrocoagulation of tonsils as being a uniformly dangerous and unsuccessful method. He prefers what he terms electrosterilization, a uni-terminal or indirect plan of treating the tonsil by

means of a tonsillar electrode which is pressed against the surface of the tonsil and held firm until the patient complains of the degree of heat. Eight to ten applications are made. According to Cahall, the tonsil is sterilized, fibrosis is eliminated, swelling and inflammation subside, and the patient experiences a grateful improvement in the feeling of the throat following the first treatment.

The limitations of electrocoagulation of tonsils are emphasized by numerous writers. In effect, they include cautions that the method has not been perfected sufficiently to replace surgical tonsillectomy as a routine procedure. Either electrocoagulation or electrodesiccation is of decided advantage for properly selected cases in which, for some legitimate reason, surgery is contraindicated.

#### MALIGNANT TUMORS ABOUT THE HEAD AND NECK

A comprehensive discussion of the treatment of epithelioma about the face, mouth and jaws is made by Padgett<sup>11</sup>, who emphasizes particularly the basis for three fundamental conceptions, namely; (1) The beginning lesion is thought to be a purely local condition and its destruction leads to a cure; (2) when metastasis occurs, the malignant cells travel by way of the lymph channels embolically, and not by permeation of tissue. Thus, as a rule, the intervening tissue between the local lesion and the lymph nodes is not involved, although the local lesion itself may infiltrate along tissue planes; (3) the collar of lymphatics surrounding the neck forms a barrier which is not penetrated by embolic cancer cells in more than one or two percent of the cases.

Navak<sup>12</sup>, advocates suspension laryngoscopy for approach to cancers of the larynx, but agrees that laryngofissure permits a better handling of the tissues. He uses electrocoagulation for destruction of the tumor mass, but continues to be pessimistic regarding any of the known methods, including surgery, x-rays, diathermy, or combinations of them. Malignant growths of the antrum are often successfully destroyed by electrocoagulation. This method is used by Stevens<sup>13</sup>, who stresses the importance of good approach, in which surgery must be resorted to. However, all surgical incisions are promptly seared by the coagulating current.

#### TUBERCULOSIS

Mayer<sup>14</sup> has repeatedly stated that the possibilities of affecting laryngeal tuberculosis with artificial light sources are theoretically promising, since it is possible to provoke chemical changes in the tissue, focal reactions (as with tuberculin treatment), hyperemia and even destruction of at least the most superficial of the bacteria.

Strandberg<sup>15</sup>, of the Finsen Medical Light Institute, recently reported the results obtained with light therapy in 203 patients with laryngeal tuberculosis, all of whom had had pulmonary lesions also. These results were, in the greater part, favorable. Strandberg discusses the importance of general light baths for all patients with localized tuberculous lesions. He also gives the contraindications to the use of light baths. These are: severe forms of heart disease, arteriosclerosis and nephritis, when not of tuberculous origin.

That light therapy is but an adjuvant to other measures is the opinion of Hollender and Cottle<sup>16</sup>. It is, indeed, not a specific, but extremely helpful to systematic regimes of rest, hygiene and diet, and all of them must be properly evaluated in tuberculosis.

The experiences of Wessly<sup>17</sup> are well worth mentioning. This investigator irradiated 544 patients with tuberculosis of the mucous membrane, with the following results: The greatest success was obtained in patients with a good power of resistance and a relatively good power of regeneration. To this group belong cases with lung processes which showed progress or had become stationary. In febrile patients who were in good general condition, a destruction of the mucous membrane processes was obtained through the irradiations. At the same time there often occurred a fall in the temperature by lysis. There was also improvement in the general condition of the patient; but in the febrile cases local cures were few. Arrest of the condition was, however, noted. The author was unsuccessful in tuberculous mucous membranes with miliary dissemination.

The work of Looper and Schneider<sup>18</sup>, treating laryngeal tuberculosis, merits consideration. They employed the electrocautery, with improvement in 65.5 percent of the patients, in moderately advanced cases, and in 26.5 percent with far advanced lung involvement. The authors caution that, in using the electrocautery,

one thing should be particularly and strongly emphasized, and that is the condition of the lungs. No laryngologist should undertake electrocautery treatment without cooperating with a clinician. Indiscriminate use of the cautery in unsuitable cases will do more harm than good and the method of treatment itself will be brought into disrepute.

#### COMMENT

The indecision of workers in the choice of physical therapeutic methods for specific indications in otolaryngology is no more noteworthy than in the preference of other procedures which fall outside the realm of physical therapy. It is interesting to observe, however, that much of the clinical investigation with physical agents in the specialty has been carried on by men who are not primarily interested in the special field of ear, nose and throat. However this may be, there has been considerable progress, and, as already mentioned in the introduction, otolaryngologists are beginning to utilize, in a greater way, those of the methods which appear rational and which have been shown to possess a sound, scientific basis.

The literature contains many more articles than have been included in this review. Those that have been excluded are not necessarily undeserving of consideration, but probably represent a repetition of much that has been published several times in the past. On the whole, there is much to be hoped for in the further development of physical therapeutic methods in otolaryngology, and the writer foresees greater progress in the future, with the advancement of improved apparatus and more specialized technic.

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#### SOME DISLIKES

As a rule, I never like the man who refers to Sunday as the Sabbath. Also, I object to the man who says it isn't money that counts, but character, brains, nobility, etc.—E. W. Howe's Monthly.

# Physical Therapy in Nutritional Disorders

By G. J. WARNSHUIS, M.D., Milwaukee, Wis.

**I**N a brief paper of this nature one can only attempt to outline the influence that modern studies in nutrition, particularly intermediate metabolism, have had in developing the intelligent application of physical measures toward correcting nutritional disorders. Bit by bit as patient, laborious experimental investigations and keen clinical observations have stripped the veil of mystery from the complicated chemical processes by which the functional activity of the cells composing the human organisms is maintained, our conceptions of nutrition have broadened, until the mere balancing of calories is of small importance as compared, for example, with the control of factors determining blood-sugar volume, acidosis, endocrine balance, etc.

The use of physical measures, including heat, light (more properly speaking, electromagnetic energy) and active and passive movements leads naturally to an analysis of the physiologic factors entering into the production of the desired results. Such analysis, instead of discrediting physical therapy, as many of its critics would have us believe, leads to a greater appreciation of its importance in modern constructive medicine or, as it may be appropriately termed, rehabilitation.

The nutritional disturbances associated with disease may be classified in the following groups:

- 1.—Ingestion of improper quantities of the essential organic food elements.
- 2.—Vitamin deficiency.
- 3.—Deficiency of inorganic elements (iodine, iron, calcium, potassium, phosphorus).
- 4.—Endocrine dysfunction and deficiency.
- 5.—Anemia (including impoverishment of blood constituents in total quantity and proportion—circulatory insufficiency).
- 6.—Sub-oxidation (acidosis, allergic sensitization, enzymatic and bacteriolytic deficiency).
- 7.—Toxemia (bacterial, absorption of products of intestinal decomposition, ac-

cumulation of waste products of metabolism).

These varieties of disorders affecting the state of nutrition rarely exist in a simple form, but are usually found associated and it is not at all uncommon to find them all operating at once. The mere enumeration of these types of nutritional disturbances serves to emphasize the difficulties in the way of correcting the morbid changes that give rise to the many clinical forms of disease such as obesity, rickets, tuberculosis, diabetes mellitus, arthritis, peptic ulcer, asthma, eczema, etc. In these diseases and many others, positive results in removing the symptoms and restoring the patient to normal wellbeing cannot be secured unless attention is given to eliminating any of these disorders that may exist.

## THE VITAMINS AND OXIDATION

The importance of vitamins in the body economy has received so much emphasis in medical literature of late that it need scarcely be discussed. Aside, however, from their relationship to the generally recognized deficiency diseases, such as rickets, pellagra, scurvy, and polyneuritis, it would seem that they have a decided influence in preventing many functional disorders of the nervous system and the endocrine glands. The recently discovered, vitamin E, for example, has been shown to have a definite relationship to the normal activity of the reproductive system. Likewise, parathyreoprival tetany may be ascribed, as much as rickets, to a vitamin D deficiency. The researches of McCarrison, Harris and others, as well as clinical observation, indicate that there is a definite relationship between vitamin B deficiency and digestive disorders.

It is quite evident, however, that although the presence of vitamins in the diet is sufficient to prevent these disorders from developing, once they have become established other treatment is frequently necessary to bring about a return to normal. Among the most effective measures are those which increase oxidation. Rickety children, for

example, do much better when they receive the benefit of out-door air and it may be that much of the benefit secured from ultraviolet radiation is the result of the production of oxidases in the tissues and blood subjected to the rays, as well as the ozone inhaled from the irradiated air. In fact, it has occurred to me that sub-oxidation may account for, not only the various disturbances of mineral and organic metabolism, but also the deficiency in vitamins, as well. There is so much about the chemistry of these vitamin-deficiency diseases, such as rickets and spasmophilia, that suggests insufficient oxidation that we are inclined to interpret the effect of the vitamins as being in the nature of a reducing agent, such as the oxyphenylalanine action in pigmentation of the skin.

Not only because of the action of vitamin E on the activity of the gonads, but because of the abundance of clinical evidence of its direct effect on the endocrine glands, exposure to ultraviolet radiations constitutes one of the most positive means we have of correcting functional disturbances of endocrine secretion. Lorander, of the Carlsbad Springs, emphasizes the need for using phototherapy, in conjunction with substitutive therapy, in such clinical condition as falling out of the hair, obesity and hypertension, associated with hypothyroidism.

#### CALCIUM AND PHOSPHORUS

Many of these clinical conditions, unaccounted for by definite organic lesions or focal infection, have in common a lack of calcium fixation. The fact that the thyroid contains more calcium than any of the other soft tissues would indicate that calcium is just as essential to its functional activity as it is to the parathyroids.

In a study of 100 cases of asthma and hay-fever, Brown and Hunter found a reduced blood calcium in 80 percent. In the toxemias of pregnancy, the blood calcium is decreased. The tonicity of the heart muscle may be influenced by the volume of calcium in the circulating blood. Numerous infectious diseases are characterized by a decrease in blood-calcium. The fact that there is no other agency that will so quickly and positively restore a sub-normal blood calcium to normal as ultraviolet radiation, makes its use imperative in correcting this deficiency.

In all of these conditions of calcium

deficiency we have also an increased excretion of phosphates, and it has been shown that, in rickets and spasmophilia, at least, there is also a marked decrease in the blood phosphorus (Hill; Shipley, Kramer *et al*). If we recall that the phosphorus content of the nerve cells amounts to 2 percent of their total substance, we can appreciate the serious consequences of this phosphorus depletion and its association with the symptoms of fatigue, aside from its influence on calcium metabolism.

The retention of phosphates may be subject to variation in the alkalinity of the blood, as it is well known that phosphates are more soluble in an acid medium than in one that is highly alkaline. Such free solubility may likewise depend, not only upon the H-ion concentration, but also upon the amount of combined hydrogen present in the form of incompletely oxidized amino acids and ketones and, as a result, the soluble acid phosphates are readily excreted. So long as these negatively charged ions are not completely oxidized into their end-products of water, carbon dioxide and ammonia, they are not readily eliminated and, aside from their toxic effect through their direct combining power with the protoplasmic elements of the individual cells, their acid reaction increases the viscosity of the cellular colloidal membranes, so that their permeability is decreased, with a resulting impairment of the individual's vitality.

#### ULTRAVIOLET RAYS AND HEAT

It is easily conceivable that the effect that ultraviolet emanations have in energizing the oxygen molecule (its conversion from oxygen into ozone) may, by effecting a more complete reduction of the products of protein digestion to simple inorganic ions, be the mechanism by which its beneficial action in phosphorus deficiency and allergic sensitization is secured. If this theory is correct, then we may explain the vitamins as substances capable of carrying the tri-valent oxygen molecules, or ozonides. There is a good deal of evidence to support this theory of the nature of vitamins but, as this article is intended to be more of a discussion of the practical uses of physical therapy than of these more academic aspects, I shall content myself with this mere statement of its relationship to these rather involved problems of physiologic chemistry. We are likely, however,

to minimize its practical importance, unless we realize its far reaching effects on intermediate metabolism.

The chemical reactions induced by ultraviolet radiation, however, are only one of the physical means we have of bringing about an improvement in nutrition. The application of heat through autocondensation, diathermy, light baths, steam baths, etc., by dilating the peripheral circulation brings about a changed distribution of the blood, reduces arterial resistance and increases the aeration of the blood in the lungs. If profuse diaphoresis is induced, the loss of fluids increases the blood alkalinity (Pemberton). Increasing the temperature of a part or of the whole body also accelerates chemical activity. Where there is hepatic congestion and an overloading of the portal circulation, the application of heat to the abdomen by diathermy, infrared radiation, kaolin packs (or what have you) will be found an excellent adjunct to purgative treatment.

#### MASSAGE

Massage, for its action on the venous return, is not to be ignored as a reconstructive measure. Although manual manipulation still has an important place in massage, modern mechanical ingenuity has improved upon this, by introducing the sine wave electric stimulation of muscular movements, and vibratory massage. Aside from its use as a general circulatory stimulant, I have found the latter invaluable in the treatment of constipation and flatulency. The agitation of the pelvic and abdominal contents, together with the rapid alternations in pressure, produce an effect on intestinal peristalsis similar to that of horse-back riding. The fact that an unusually copious evacuation, even in those having daily bowel movements, frequently follows an application of this form of mechanical massage is impressive evidence of the existence of intestinal stasis, even though daily defecation occurs.

While the pernicious effects of intestinal stasis on nutrition and physical efficiency are universally recognized in medical circles, there has been a great deal of dissatisfaction with the methods of purgation usually employed. Sedentary habits are more likely to be the principal factor in causing constipation than are any other conditions, because exercise of the trunk muscles, with its repeated changes of pressure on the abdominal viscera, provides the

necessary mechanical stimulus to peristalsis. Without such stimulation, the intestinal movements are certain to become sluggish and ineffective and the portal system, lacking this "squeezing out" activity, becomes congested.

There are many other considerations in the application of physical therapy methods to problems of nutrition, but these at least serve to illustrate the effectiveness of these measures in many morbid conditions that are so baffling under ordinary medical and surgical treatment.

Physical therapy introduces no new principle in medicine but, as Waddington expresses it, it represents a refined and positively controlled method of applying the age-old remedies of sunshine, fresh air, exercise, and heat.

The simplicity of these measures, however, should not lead one to assume that positive results can be obtained without an intelligent analysis of the condition to be treated. Without such analysis, the treatment becomes haphazard, there can be no attempt to gauge the patient's response, treatment is likely to be either too intensive or inadequate, sometimes of too short duration, and, on the other hand, often prolonged over a period out of all proportion to the results obtained.

In our obesity cases, for example, the treatment will vary considerably, according to the type of obesity the case presents. Frequently, a basal metabolism test is helpful in determining the degree of thyroid insufficiency that may exist. We can heartily agree with Engelbach in his statement that a basal metabolism test is of more importance in pregnancy than a uranalysis. The procedure involves little more time and labor than the latter, and yet it is almost entirely neglected.

Simply to refer a patient to some masseur or bath-house, with the statement, "Give him some ultraviolet or diathermy or whatever may appear indicated", is not doing justice to the patient or to physical therapy. It would be like sending a patient to a druggist with a prescription for some "heart medicine." The physical therapy must be prescribed, controlled, and supervised by the scientifically trained physician, thoroughly competent in modern diagnostic methods, and preferably by one who has had sufficient experience in the use of these measures to be able to individualize their application.

Used intelligently and adapted to the capacity of the patient to respond to it, and with the commercial element reduced to a spirit of ethical service, these agencies offer

an unlimited means for humanitarian endeavor.

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## Tonic Ultraviolet Dosage and Clinical Symptoms of Overdosage

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**I**N CHOOSING the subject for this discussion, I have been governed entirely by a desire to give my observations of the clinical effects of ultraviolet rays, as observed over a period of seven years. These observations are based entirely on modes of treatment for *tonic effect only* and are not to be confused with other procedures for which one would use the ultraviolet rays, such as their bactericidal or sterilizing effect.

When I first became interested in light, seven years ago, ultraviolet therapy was used quite extensively in Europe, but its use in this country was confined mainly to the veterans' hospitals, some tuberculosis hospitals and a few other clinics and hospitals. There were a few enthusiasts in this country who even took to the lecture platform to tell the physicians about the wonders of light. It is not necessary for me to recall the work accomplished, even in this period, by such men as Rollier, Bovie, Hess and many others. Ultraviolet therapy had received its stimulus during the World War, and at the time of my entrance into the field had just begun to leave its impression on the medical profession as a whole. One of the outstanding events of this particular time was the treatment of an x-ray dermatitis with ultraviolet rays, and the controversy that followed this particular case really brought about my interest in the use of this particular agent.

At that time, the treatment was more or less empiric and was copied from a technic laid down by Dr. Rollier, based on sun treatment and then altered to fit the particular make of lamp used. Dosage was gaged by erythema entirely. The technic was as follows:

### OLD TECHNIC

The lamp was usually placed 30 inches above the patient. The entire body was covered, except the feet and ankles, which were given a first-degree erythema (a slight reddening of the skin, which usually disappears in 24 hours). The next day, the feet and ankles were given twice the dosage, the sheet being raised and the legs exposed. Then the legs, feet and ankles were irradiated the following day, and the sheet was raised to the hips, so that the thighs were uncovered. In other words, one started at the feet and worked up by sections until the entire body was uncovered and receiving treatment. The dosage was constantly increased until, in some cases, the patients were taking as much as thirty minutes to one hour on each side and, after this was reached, the distance was lessened by dropping the lamp down an inch at each treatment, until twelve inches was reached. These patients were treated, sometimes daily, for a period of two or three years. The idea was to give the individual plenty of "sunshine" or ultraviolet energy. Quoting from one of the leading advocates of these methods: "The plan is to saturate the patient with light." Tanning was an essential part of this plan, and the darker the individual, the more elated the enthusiastic physician became. In fact, even today, there are a great many who still are of the opinion that, in order to get results with ultraviolet rays, tanning is essential.

### MODERN IDEAS

Several years ago, Drs. Hess, Steenbock and others announced a new theory as to the effect of ultraviolet rays on the human body. Drs. Steenbock and Hess discovered

that the action of these rays depended entirely on the activation of chloesterol and *ergosterol*, and not upon the direct action of the rays on the blood stream, nor upon the reaction of the skin.

This discovery has changed the entire technic. In the first place, it was discovered that *ergosterol* exists in minute quantities in the skin; that it is changed to vitamin D after being activated; and that this vitamin is carried by the blood stream through the system and causes the tonic effects. It was found that, when an individual had been irradiated over a long period, this *ergosterol* became exhausted and that it was necessary to discontinue treatments and allow this substance to replenish itself. It was also found that, after reaching a certain maximum dosage, additional radiation had no effect. In fact, in some cases, the maximum dosage was, in reality, an overdosage.

The distance from the lamp to the patient also seems to have a decided effect and, since the solarium type of lamp has come into the field, the tonic effects seem to be greater than with the floor lamp. This type of radiation is obtained by placing the lamps about 60 inches from the patients, the lamps being usually fastened by permanent fixtures to the ceiling. Approximately the same results may be obtained by using a floor lamp at a distance of about 50 inches from the patient.

When we first started using this method, we were under the impression that we had a predominance of certain wave lengths which were more active than other wave lengths, but experimental work has not disclosed anything startling along this line, though there seems to be a greater amount of intensity around the band of 3100 Angstrom units, and we are of the opinion that probably the reason for uniform results lies in the fact that our radiation is of the mild type and that better effects are obtained by irradiating the entire body with mild doses. Cases thus irradiated do not show a great deal of pigmentation and erythema is avoided absolutely. Naturally, a slight tan will result, over a certain period, but if it does not appear, it does not mean that the treatment has been ineffective.

Dosage must be regulated very carefully and the initial exposure should not be for more than one half-minute, in adults, and as short as five seconds in children. The dosage referred to here is for mercury vapor

lamps, and not for carbon arc lamps. Treatments should not be given daily, but either every other day or three times a week, at first. The dosage is increased very slowly, and this increase is guided by the response of the patient and the clinical symptoms that may arise, due to an overdosage.

#### SYMPTOMS OF OVERDOSAGE

Clinical symptoms of an overdose are important guides and they play a prominent part in the successful handling of the case. I shall state these briefly, so that you may have the opportunity of detecting them as they appear. One of the principal symptoms is *malaise*. Ultraviolet rays, when given as a tonic, produce a buoyant effect or "pep up" the individual; but, if an overdose is given, the opposite effect, *malaise*, is produced.

The second clinical symptom is *sleeplessness*. Ultraviolet energy is a sedative and, when the proper dose is given, will induce sleep.

The other clinical symptoms are *nervousness*, *nausea* and, in some extreme cases, even *vomiting*. I have seen several cases of severe nausea produced by overdosage.

How should we control our patients so as not to overdose them, and what should be the procedure after they have been overdosed? The method I use is as follows:

As soon as I see the first sign of a clinical symptom, I immediately cut my dosage in half and wait until all symptoms disappear. I then increase the dosage very slowly, keeping it just under the point where I noticed the first symptoms. I do this for several weeks and then increase it slightly again until symptoms reappear, or until a maximum dose of ten minutes is reached. If clinical symptoms reappear again, I assume that this is the patient's saturation point and I do not go beyond this.

If a patient has been overdosed, I discontinue treatment for about a week or ten days and then start all over again, watching carefully for symptoms.

I have found that a great many people are not troubled in any way with clinical symptoms and can tolerate the maximum dose of ten minutes very well, over a period of several months. After a time, however, they do not react to the effects of the treatment, and then I discontinue it for several months and start all over again at the end of that time.

My attention was called to these clinical

symptoms several years ago, by a physician who was taking these treatments himself. He noticed these various symptoms and found that he could produce them by overdosing himself. He was a professor in one of our universities and did a great deal of research work, and it is through his untiring efforts that we really began to study the effects of overdosage in radiation scientifically.

#### ILLUSTRATIVE CASES

In closing, I will cite two cases to bring out the effects of overdosage.

I was working with a pediatrician in St. Louis, who had prescribed a course of treatment for a boy of about nine years. The child did fairly well for a month or more. He gained weight, his appetite increased, he took a greater interest in things and had more "pep" and vitality. One day, the mother stated that the boy had lost his appetite, had become quite restless, and complained of more or less malaise. Immediately, we ceased treatment and, after about ten days or two weeks, we started again, very slowly. The symptoms disappeared about a week after treatment had been discontinued and we were able to keep the boy improving by smaller doses at longer intervals.

Guerstenberger has written a great deal about ultraviolet therapy in pediatrics and claims that he can cure rickets by irradiating the child once a week, for five minutes. I believe his treatment is rational.

One other case will show how much harm overdosing can do.

At one of our large tuberculosis sanitariums, the patients are treated in large ultraviolet solariums. One patient complained quite bitterly after the treatments, stating that they made him feel considerably worse. This, at first, was thought to be a psychic reaction, as the dosage given was about five minutes anterior and five minutes posterior, but, as he complained each time and certain clinical symptoms appeared, the physician in charge of the case realized that perhaps the man did have a just cause and he discontinued the treatments temporarily. He then started with very small doses and built the dosage up very slowly, with the result that the patient became much better, increased in weight and felt well.

Examples such as these have proved to me that there is such a thing as overdosage of ultraviolet energy and that the physician must be very cautious in his prescription of this valuable agent.

3974 Olive St.

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## Electrocoagulation of the Tonsils

By CLARENCE H. BURTON, D.D.S., M.D., Mt. Clemens, Michigan  
*Visiting physician to the Grace Hospital*

THE question of removing the tonsils, as a source of focal infection, has interested the medical profession for many years. Medical writings abound, with numerous methods of treatment, both surgical and medical, but all of them seem wanting in one way or another. The ideal method has yet to be discovered, but I believe the nearest approach to it is by electrocoagulation, which seems to be the method of choice today, judging from the number of men who are adopting it in America.

The tonsil is today in much the same position that the ovary was twenty years ago. At that time almost every surgeon was removing ovaries daily if the least pathologic tissue was apparent upon examination. It was only five years ago that

the medical profession was urging the wholesale extraction of the teeth, but fortunately the wisdom of the dentist outweighed the medical advice and thousands of teeth were saved.

The removal of the tonsils is a serious operation, for children and adults. Severe hemorrhage and lung abscesses follow more often than most physicians imagine. A surgeon should be cautious in saying that he has operated two or three thousand times without a death, for, according to the law of averages, he is due for a fatality sooner or later.

In 1923, sixty-two deaths were reported from hemorrhage following the removal of tonsils, and in 1925, 125 deaths occurred from this so-called harmless operation. One may judge the actual results when we con-

sider that many cases are never reported. Wessler states that 80 percent of his cases of postoperative pulmonary abscesses followed tonsillotomy. Shock, secondary infections, lung abscesses, trauma of surrounding tissues and embolism must not be overlooked, because they occur very often.

It is true that the throat specialist is loath to give up his operating and has plenty of arguments against the electric technic, but the public is quick to embrace relatively painless methods, especially when they promise equally as good results without the risk and expense of an operation.

All writers on the subject stress two points: First, that this method is not suitable for children, because they generally have adenoids and also they cannot be handled as adults; second, it should be the method preferred in cases of chronic valvular heart disease, high blood pressure, kidney disorders, chronic arthritis (especially when the patient is bed ridden), hemophilia, tuberculosis, acute syphilis, old age and in anemic patients. In other words, when an anesthetic is dangerous.

The question at once arises, if electrocoagulation is so successful in these cases, why is it not successful in all adult cases? I will go a step farther than most other writers and say that it can be used with good results in all adult cases. I can think of no case, in adults, where electrocoagulation is not indicated, for the most difficult cases to operate upon can be easily handled. No one likes to take an anesthetic or suffer after pains, neither of which is necessary with electrocoagulation.

The economic question should also be considered, as an operation for the removal of tonsils generally confines the patient at home for from three to eight days, while no time is lost by the electric method. It is not necessary even to lose a meal. The only contraindication is the time, for it takes from three to four weeks to remove both tonsils completely.

#### DIFFERENCE FROM OTHER METHODS

Electrocoagulation should not be confused with the older methods of cauterization, desiccation or fulguration, but is just what its name indicates; the coagulation of the tissues by electricity, using a hot needle which destroys the tissues for about one-quarter inch in every direction from the inserted instrument. Fulguration is a bom-

bardment of the tonsil with a high-frequency current, aiming to destroy the superficial tissues with the spark. Desiccation is also performed with the unipolar current, burying the instrument in the tissues in order to evaporate the fluid elements, leaving them in a dehydrated condition. In both cases high voltage and low amperage are used; but in coagulation we use a low voltage and a high amperage, with a bipolar current. The destructive heat is concentrated at a needle point and coagulates the cellular structures.

Skilern, of Philadelphia, treated several tonsils by this method, giving only one treatment, and after removing them by surgical means, he found that the heat necessary to destroy the tonsillar tissue had, to all appearances, destroyed the infecting organisms within the depths of the crypts. Sections of the coagulated tonsil showed normal tissue below the area coagulated. This action of sterilization accounts for the improvement in the constitutional symptoms after the first or second treatment.

#### CAUSES OF FAILURE

The censure which has been cast upon the electrocoagulation of tonsils is, in a measure, justified because, until recently, this method has been practiced by unskilled men, many of them not even medical graduates, with a very limited knowledge of anatomy and no experience in operating. This, together with the fact that the first electric machines were not nearly so efficient as those of today, gave rise to a number of failures, for the technic is not simple and only those having a previous surgical experience in the removal of tonsils should attempt it.

If one will study the history of the tonsil and the many methods of operating in the past, with the unsatisfactory and even fatal results, one will hesitate to condemn this method, especially as it is only a few years old. Furthermore, if the well qualified throat specialist, with a thorough knowledge of surgery based on a long experience, will take up this work seriously and devote as much care and attention to it as he does to his operations, he will be pleased with the results.

During the two years I served as house surgeon of the London Throat Hospital, London, England, I operated on hundreds of tonsils, using the method they taught me. They used the Makenzie guillotine

and cut off as much of the tonsil as they could, allowing the stump to recede and form scar tissue. This is much like the Sluder operation of today. Once in a while we get the tonsil, capsule and all complete, but many times we have to cut through the tonsil and leave a half or a third of it behind. The wire snare was a step in advance, but many a uvula has been caught in it and taken off, injuring the throat permanently.

I was never able to make up my mind which was the worst for the patient; a complete removal of all of the tonsillar tissue or a partial removal, leaving the stump. We have all seen cases, after the complete removal, where the pillars collapse and come so close together that they leave a pocket which continually fills up with food and debris, requiring daily removal in order to keep the pillars in a normal condition. In many cases of this kind, I have made an instrument by bending the end of a wire at an angle of 45°. I then instruct the patient to wrap it with sterile cotton and clean the pockets daily. They very much dislike to do this the rest of their lives, but what else can be done?

When we leave the stump which contains the inferior tonsillar branch of the lingual artery, it very often re-grows and a secondary operation is necessary. It also is a continual seat of infection, which may be seen by the inflamed condition of the anterior pillar.

What, then, is to be done, if both methods are faulty in some cases? My answer is that, no matter how much of the tonsillar tissue remains, it can be rendered sterile in one treatment by electrocoagulation. A single treatment will often suffice to destroy the seat of infection and that is all that is necessary to obtain the desired results.

#### TECHNIC

A knowledge of electricity is necessary, as the machines are not fool proof, and a good, standard make of machine, with a foot switch, should always be used. It should be capable of delivering an alternating high-frequency current, with oscilla-

tions from  $\frac{1}{2}$  to 3 million per second, and amperage well above the amount necessary for the destruction of the tissues.

I use a bi-terminal winding of the d'Arsonval current. A piece of tinfoil, about seven by eight inches, is placed on the back or upper arm, while a needle is attached to the other wire. Before beginning the operation I use a spray of 1-percent cocaine in the throat, followed by three applications of a 10-percent cocaine solution to the tonsils.

The needle is insulated to one-quarter of an inch from the point and bent at an angle of 45°. A good light is necessary.

I insert the needle into the crypts and also into the tissue of the tonsil, making six or eight insertions in each tonsil, holding the needle in place about one or two seconds and taking it out only after turning off the current with the foot switch.

After four or five days, one-third of the tonsil is gone and one can repeat this until every vestige of tonsillar tissue is destroyed, or can stop when the diseased portion is coagulated. The toxic symptoms generally cease after the first treatment, which is a little painful, due to the piercing of the capsule which contains the sensory nerves. The subsequent treatments hardly need any application of cocaine.

#### SUMMARY

The advantages of electrocoagulation are:

1.—All types of tonsils, in the adult, are suitable for this technic.

2.—Freedom from hemorrhage and lung abscesses.

3.—Lack of shock.

4.—No pain.

5.—No detention from occupation.

6.—Ability to eat and drink during and immediately after the treatment.

7.—End results are exactly what the surgeon makes them, as he can go on treating and destroying the tonsillar tissue until every vestige of it is gone, or stop at any time he sees fit.

The only disadvantage is the length of time required, as three or four weeks are necessary to complete the treatment.

42 S. Walnut St.

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# Wherefore the Physical Therapist?

By JOSEPH E. G. WADDINGTON, M.D., C.M., *Detroit, Michigan*

*Member of the American Medical Authors' Association*

SOME five years ago a well known medical book publisher fallaciously argued that physical therapy, being a recognized part of medicine, should by no means be invidiously constrained or elevated into a specialty. This somewhat informed bibliognost claimed—and correctly—that physical therapy, in some form or forms, is universally recognized and applicable by the profession in general; that the trained services of a physician are necessarily requisite in order to apply such therapy intelligently and adequately; therefore, he believed—unfortunately not quite so perspicuously—that the physical therapy specialist was but an undesirable excrescence upon an already excessively matured specialistic profession.

Whether the half-decade has changed the gentleman's views I am unable to state but, whether or not, those now best qualified to know fully realize that physical therapy is persistently evolving, from its previous chaotic genesis of everyone for himself and none for all, into well ordered lines of specific research, scientific development and application, which must inevitably place such therapy in the foremost rank of specialties.

The academic thought of five years ago merely expressed the undeveloped and warped conception which the negligibly informed then entertained concerning an ancient and imperfect therapy, emerging in a new and fundamentally correct guise. Even today, a majority of the profession so myopically view the subject as to assume that physical therapy is either an insignificant yet vastly overrated part of medicine, or that it is so simple in theory and practice as to demand no more special education and experience than would be indicated for the mere mechanical attachment of connecting cords and electrodes and the manipulation of a switch, or to qualify as the old-fashioned practical nurse capable of administering an enema, an alcohol rub, apply a hot water bottle or a mud poultice, and similar primitive but popular natural or physical therapy attentions.

Every physician—and practically every

adult female of the species—has some knowledge, applied and pure, of the comparatively simple and limited variety of diseases peculiar to infancy, yet the pediatrician is not without honored recognition. The physical therapist must, not only possess an extended knowledge of general medicine and surgery but, in addition, requires an equally embracing cognition of physics, mechanics and the practical application of the multitudinous electro, photo, mechano, hydro and other integrant appliances constituting the armamentarium of modern physical therapy.

Every physician is necessarily limited by time, expense and inclination as to what form or forms of physical therapy he shall more or less qualify himself personally to apply. One of the first acquisitions the physician, physiotherapeutically inclined, invests in is a high-frequency machine; consequently, diathermy is quite popularly recognized, yet bronchitis and bronchial asthma, two conditions for which diathermy is brilliantly indicated, may be greatly aggravated instead of relieved if the dosage—intensity and duration—of the current be not as carefully considered as in similarly estimating the dosage of any potent drug.

High-frequency currents may be of variously damped and undamped or sustained oscillatory frequency. Infrared, radiant light and heat, biterminal and uniterminal high-frequency currents, damped or undamped, are all vibratory manifestations of heat, but differ materially in qualitative and quantitative degree.

The phototherapeutic spectrum consists of many component bands, some antagonistic and some synergistic in their action upon the sympathetic and the parasympathetic nervous systems. Ultraviolet rays, whether emitted from a carbon arc, by means of variously modified carbons, from an air-cooled mercury arc, or from a mercury-argon arc, differ considerably in their spectral characteristics, intensity and, concomitantly, in clinical response. Consequently, phototherapy implies much more than the mere purchase and indiscriminate application of

some one or other of the numerous available ultraviolet generators as a "panaceal substitute for sunshine".

Although ignorance may give one a large range of probabilities, only scientific exactitude will permit one to convert such insecurity into assured facts. High-frequency currents, though generically alike, may differ specifically, as to quantity and quality, just as markedly as the generically similar products of a pastry cook may specifically vary in flavor and variety. A diathermy current of low voltage and high amperage will be entirely different, as to penetrative heat effect, compared with a high-voltage-high-amperage or even low-amperage, although this latter may be essential for various grounded, uniterminal Tesla applications, where localized heat of superficial degree and penetration might be indicated, as in rhinitis or ethmoiditis, for example.

"To behold is not necessarily to observe, and the power of comparing and combining is only to be obtained by education." Wordsworth's lines:

"A primrose by a river's brim  
A yellow primrose was to him,  
And it was nothing more";

would not apply to the scientifically trained physical therapist.

With the aid of a trained technician and the indicated apparatus, the general practitioner may provide some needed and valuable physical therapy treatment for indicated cases, and thereby achieve results impossible for his less well equipped competitor to equal. A busy practitioner cannot possibly devote much personal attention to physical therapy treatments, which ordinarily will necessitate from a half-hour to an hour of more or less unremitting attention to each patient. He can, however, quickly prescribe the indicated treatment, which an efficient technician should be able to administer as skilfully and beneficially (quite often more so) as the practitioner himself.

A direct and sinusoidal or wave current apparatus; a high-frequency machine, with a few quartz combination electrodes for simultaneously administering localized high-frequency and ultraviolet; an ultraviolet generator for general or constitutional radiation; with a couple of infrared generators, will constitute a well equipped physical therapy office for the general practitioner. This outfit, with a couple of small additional rooms or cubicles and a technician can be

kept so busy that the expense incurred will only constitute an amply repaid investment.

Nevertheless, a specialist, unlike a general practitioner, must be *thoroughly* informed upon all that appertains to his specialty; he should be adequately prepared to treat anything and everything coming within the confines of his specialistic practice, so that even St. Luke's case of "the woman with the incurable issue of blood twelve years, which had spent all her living upon physicians, neither could be healed of any" may, peradventure, find, in the scientific touch of the physical therapist's ministrations, that relief otherwise unattainable.

An acutely sprained joint, treated with the powerfully penetrant yet delicately controllable massage of a static condenser discharge, will receive immediate relief, and the patient thereby be enabled, far more rapidly, to resume use of the affected part than by any other means available.

The hypo- and hyper-tension cases will be more responsive to any indicated medication if such be adjuvantly supplemented by vibration, applied at the respective spinal nerve centers, for stimulation or sedation of the vasomotors; static insulation, or general ultraviolet radiation may also be necessary, as indicated in certain types of such cases.

Prostatic hypertrophy, so affecting the urinary canal as to compel catheterization, has been so reduced by diathermy, followed by the static condenser discharge, as to permit the apparently indicated operation to be indefinitely postponed.

Galvanism, or the therapeutic application of the direct current, has been utilized for decades; yet today many of its enthusiastic users still believe in the constitutional efficiency of various drugs administered phoretically or from the respectively indicated positive or negative pole; but the important interpolar reaction of the tissues exposed to the less direct effect of the immediately contacting electrodes is only dimly appreciated, even by the specialist.

Personally, the most surgically minded will eagerly seek and accept the possibility of some less drastic method of cure or alleviation than that involved by strictly surgical attention; neither the laity nor the less surgically inclined physician can be condemned, scientifically or practically, for seeking and popularizing measures designed to conserve the health and anatomy of suffering humanity.

All pioneers, medical or otherwise, need to possess, superabundantly, a spirit of faith, hope and courage, in order to surmount the apparently insuperable difficulties attendant upon any new enterprise or line of thought and endeavor. Only the physical therapy specialist, with his special intensive and extensive training and scientifically tempered enthusiasm, can be thus expected to possess preeminently the ability and desire, laboriously and perseveringly to investigate the old and to inaugurate new channels of physical therapy theory and practice.

Ancient Athens built an altar to "The Unknown God," yet derided the apostle who was the first to interpret, concretely and intelligently, the message of that belief, erected, but not sustained, by faith. So today, although we all, consciously or unconsciously, believe in a development of the healing art which shall work a redemption from suffering, yet a majority of us still remain deaf and blind to its increasing emancipation through and by the power of scientifically and specialistically developed physical therapy.

110 Atkinson Avenue.

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## Recent Advances in the Treatment of Pneumonia by Diathermy

By HARRY EATON STEWART, M.D., *New Haven, Conn.*

*Director, New Haven School of Physiotherapy*

ABOUT seven years have elapsed since my first report on ten cases of pneumonia, treated at the U. S. Marine Hospital, No. 21, New York. During that time there have occurred numerous epidemics of varying mortality, with an increasing proportion of cases receiving diathermy. Four or five series of treated cases have been compared in mortality with a control series in the same institutions. With additional clinical experience and the facilities afforded in private practice to intensify treatment, there has been a steady diminution in mortality. No claim was put forward on this point, however, until after six years of work with this treatment.

About ten writers have published reports of treated cases and, in all but one, the reduction in mortality was over fifty percent. Recently, in *The Military Surgeon*, Maj. Offutt reported a series of cases treated at Walter Reed General Hospital, Washington, D. C., in which there was obvious relief of symptoms and clinical improvement in the patients, but reduction in mortality of only about 28 percent. It is practically impossible, in routine hospital practice, to treat patients as often and as intensively as may be necessary in certain stages of the disease.

Some very interesting reports are reaching us from the British colonies throughout

the world, which include a large number of treated cases. My paper before the Royal Society of Medicine, in London, reprinted in the *British Medical Journal* three years ago, aroused sufficient interest to institute this clinical trial. As nearly as can be determined, the mortality in all cases treated to date, numbering, probably, well over a thousand, is about 12 percent. The average in all untreated cases is nearly 28 percent.

### TECHNIC

The technic of treatment now advised differs somewhat from that first used. Flexible, composition-metal electrodes are chosen, considerably larger than the involved area, covered with warm, thick soap lather, applied antero-posteriorly over the affected part of the lung and overlapping, to some extent, uninvolved areas. This technic had led to a distinct lessening in the number of extensions to adjacent lobes.

Of particular interest has been our recent study as to intensity of dosage. From one or two twenty-minute treatments daily, we have increased the number to one every three hours, omitting one in the early morning. In desperate cases, we have given treatments as often as alternate hours. The duration usually ranges from 20 to 30 minutes, but in one instance was over six hours

We do not yet know the limit of intensification. We should, however, think of increasing the frequency and duration of treatment wherever the patient's symptoms are appreciably improved during or immediately after treatment.

#### EFFECT ON THE HEART AND TEMPERATURE

Fortunately, diathermy seems to have a favorable effect upon the overworked cardiac musculature. This may be due to an increase in the blood supply to the myocardium, as the direct result of increased temperature, or to stimulation to the nervous mechanism of the heart itself. The decrease in cyanosis, so generally observed, may be explained in several ways. Relief from pain, when present, occurs, with greater respiratory excursion and therefore better oxygenation of the blood. There is undoubtedly a quickening of the circulation around the consolidated area. As a rule the temperature begins to fall by lysis, no matter how early in the disease diathermy is started, and this is generally accompanied by a slower, fuller and more regular pulse. In only 3 percent of treated cases has the disease ended by crisis. There is little doubt that, by lessening the sustained high temperature, the body is better able to conserve its energy. The attending physician is usually able to reduce markedly, both opiates and cardiac stimulants when diathermy is used. There is a tendency, also, for the patient to rest more easily and to sleep following treatment.

Our attention has been directed particularly to the heart, in the last seasonal epidemic. In several cases, although diathermy was continued until the temperature was normal and the pneumonia rapidly resolving, death occurred from cardiac failure after treatment was withdrawn. We now believe that, where the heart has been through a severe strain, cardiac application of diathermy should be continued, once or twice daily, for about a week after the temperature has reached normal.

#### RESULTS IN STREPTOCOCCUS PNEUMONIA

Another interesting study has been the

effect of diathermy on various types of streptococcus pneumonia, many of them clinically identical with those seen in the 1918 epidemic. It had always been my opinion that diathermy would not have proven of particular value in those cases. It was, therefore, quite surprising to find a mortality no higher than that of ordinary lobar pneumonia, in the Type III and hemolytic streptococcus groups. The only element particularly in our favor was the early institution of treatment in a good proportion of these cases. Only two or three cases, so far as I know, have succumbed, when treatment was begun before the third day. It is believed that, when the value of this treatment becomes more firmly established in the minds of the profession and treatment is instituted much earlier, there will be a still greater reduction in mortality. Far too often, up to now, this treatment has been reserved until the case became desperate. Forty-three (43) of our cases survived, in spite of the opinion of the medical attendants that they were hopeless.

#### SUMMARY

Diathermy is absolutely safe in skilled hands. Not a single untoward result has occurred, so far, in some 7000 individual treatments.

Symptomatic relief is almost the rule. The patient whose symptoms are not improved by diathermy will probably die.

Many patients are encouraged, in their fight against the disease, by the relief the treatment affords them. This improved mental attitude is sometimes a determining factor.

Empyema is not a contraindication for continued treatment with diathermy.

No single measure that the physician should employ in the treatment of this disease need be interfered with by the use of diathermy.

It is believed that an adjunct of great value, for use with the routine medical and nursing care of the patient with pneumonia, has been found.

303 Whitney Ave.

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# Physical Therapy in Colitis\*

By LOUIS H. LEVY, M.S., M.D., New York City

*Attending Gastroenterologist, St. Mark's Hospital*

**C**OLITIS, either alone or associated with some other abdominal condition, forms fully sixty percent of cases seen in gastrointestinal practice. An exact definition of colitis is not possible, as no single definition could clearly define the disease in its many phases. The name signifies an inflammatory condition of the colon: And still some colitis states, recognized as such, show no evidence of inflammation. It has been described in as many different ways as there have been writers describing it, and perhaps I may be adding to the confusion in attempting an interpretation of it as it has presented itself to me.

Some gastroenterologists divide colitis into simple catarrhal, spastic and ulcerative and, although in a general way this is an excellent grouping and mentally suggests to one a picture of the pathologic condition existing in the colon, still it is inconclusive, for the simple reason that a catarrhal colitis may be spastic and vice versa. And again, it is not always a simple matter to tell when non-ulcerative colitis stops and ulcerative begins. As a matter of fact, both the non-ulcerative and ulcerative types frequently exist together.

The absence of mucus in the stools is no indication of its absence in the colon. It may require the examination of several stools to find it. At one time, a stool may be almost pure mucus and, at another time, normal in appearance. Again, mucus formed in the proximal colon may undergo disintegration in its passage through the rest of the gut and not manifest itself in the stools.

Colitis is a disease characteristic of the third and fourth decades. It is also present, to a lesser extent, in patients in their teens and even beyond the fifth decade. I have seen it in children as young as seven and in adults over ninety years of age. Although colitis is, to a great extent, a disease of the female sex and, although this is true to a large extent of those cases of endocrine

origin, nevertheless, as one studies statistics of colitis from all causes, one is impressed by the large number of cases among the male sex.

Any part of the colon may be involved, or more than one part and sometimes the entire colon. Symptoms are largely dependent on the part involved. By far the most painful are those cases involving the transverse colon; while those in whom the descending colon or sigmoid are involved are more prone to constipation with its attendant symptoms. When the cecum is involved there is apt to be nausea and vomiting.

Colitis is diagnosed from the history, physical examination and x-ray study. With the exception of some cases of irritable colon, it is a relatively simple matter to diagnose colitis from a proper examination of the abdomen. Tenderness and occasional spasticity are present over the part involved. The x-ray films will confirm this.

Every case of colitis, from a therapeutic standpoint, is individual and should be treated according to its own indications. When this is understood and strictly adhered to, better results will be obtained by those using physical therapy in these cases. In other words, the treatment of colitis is not alone the treatment of the disease itself which, after all, is frequently secondary, but the concomitant treatment of the cause. Unfortunately this procedure is not always followed, with the result that no benefit is obtained and, because of this, physical therapy is condemned.

As one goes over the list of causes, one is impressed with the importance of not relying entirely on the use of physical therapy. It can be stated with emphasis, that physical therapy is a valuable aid, when associated with other corrective measures, especially medication and diet. Employed alone, it is almost sure to fail in many cases. When employed with other agencies it is of considerable value. To date I have employed it in over 600 cases. Whereas at first I used it only in those cases which would not respond to medication and diet or other means alone, now I employ it in every case, for the reason that even those

\*From the Gastrointestinal Service at St. Mark's Hospital.

\*Read before The New York Electrotherapeutic Society, Jan. 2, 1929.

cases entirely amenable to diet and medication respond much more quickly, and the results are more lasting when physical therapy is used. I have patients, in some of whom the condition had been chronic for many years, who have been entirely free from symptoms for six years, or ever since I began the use of physical therapy.

#### ULTRAVIOLET AND INFRARED RAYS

The basic treatment is ultraviolet radiation, and to this is added infrared radiation. Before the introduction of the present type of infrared generators, I used the 1500-watt incandescent bulb on my earlier cases, and although these cases, to all intents and purposes, have done as well as the later ones, in which the present-day infrared generators were used, nevertheless I found that the symptoms were more quickly relieved by the later type of source of infrared energy.

Ultraviolet radiation is applicable, when used with other proper agencies, in all forms of colitis, although not so specific in all as it is in those cases of vitamin deficiency and endocrine origin. It is of special value in cases of neurogenic origin and extremely useful in that almost hopeless of all forms, the tuberculous type.

In 209 cases of intestinal tuberculosis, analyzed by Brown and Sampson, of 29 who received no ultraviolet treatment, 83 per cent died; whereas, of 180 treated cases, 65 per cent are living and only 35 per cent died.

When infections are the underlying cause, the original focus must be removed. Very often the original focus, having instituted a colitis, the colitis itself becomes a source of infection to other parts such as the appendix, gall-bladder and even the joints, so that the case may become extremely complicated.

When the colitis is due to adhesions, considerable relief may be obtained before surgical interference is resorted to. Its use before operation seems to be helpful in preventing or lessening the formation of post-operative adhesions. This probably results through its building up of the resistance of the peritoneum, especially in those with an "adhesion diathesis." In the cases of allergic origin, such as those associated with asthma, the results have not been so good without the simultaneous injection of the allergen responsible for the condition.

Experience with physical therapy in ulcerative colitis shows that it is possible to obtain

periods of varying duration free from symptoms, but there is a recurrence. At present, in these cases, I use it in conjunction with enemas containing ten ounces (300 cc.) of water with two ounces (60 Gm.) of kaolin and chinolol (oxyquinolin sulphate), 1:700. After a cleansing enema this mixture is injected and retained over night by the patient. Much better results are being obtained by this method than by any other which I have so far used. From this, it again becomes apparent how necessary it is to combine other measures with physical therapy.

The question frequently raised is, which source of ultraviolet radiation is more beneficial—the mercury vapor in quartz lamp or the carbon lamp? I use both, the latter only as an adjunct to the former, in trying to build up more quickly a tolerance of the skin to the effect of the ultraviolet rays from the mercury vapor lamp.

The treatment of these cases of colitis, although individual, is not difficult. After the cause of the colitis is ascertained and proper measures for its removal instituted, the patient is given a diet absolutely free from all roughage. As many of these cases have been using bran for the associated constipation, its use must be prohibited as, in these cases, this has been one of the provoking causes. Likewise colonic irrigations must be stopped, for the same reason. Instead, when constipation is present, very small doses of mild laxatives, such as phenolphthalein or cascara sagrada should be used, adding them to the other medication; or a small dosage of milk of magnesia may be advised.

As soon as the colon becomes less irritable in the process of the healing, spasticity becomes less and the constipation tends to disappear. When this occurs, very small amounts or none at all of any of the cathartics are required.

The use of the common forms of enemas should also be discontinued. If dyschesia is present, the rectum may be cleansed by the use of small amounts of water. For healing and soothing purposes, enemas, not over a pint, consisting of a vegetable oil and water containing bicarbonate of soda, to be retained over night, may be used.

In all cases there should be given at the onset a sedative, such as sodium bromide or, when this cannot be tolerated, luminal (phenobarbital), in the form of a tablet or the elixir. In all cases of colitis the nervous

system is involved in some way and a state of hyperesthesia is present, which can best be taken care of by a sedative.

For the local treatment of the colonic mucosa we have three excellent medications; bismuth, barium sulphate and kaolin. When there is a tendency towards constipation, kaolin or barium sulphate is used; in other cases bismuth. The mode of action of these agents is well known—they are protective.

#### TECHNIC AND RESULTS

The technic for the physical therapy is simple. The abdominal surface is first exposed for one-half hour to the infrared lamp. This is followed by increasing dosage, front and back, with ultraviolet radiation, using the mercury vapor lamp. At the beginning the carbon lamp is also utilized, with an exposure of thirty minutes duration to the abdomen only. The exposures are reduced in duration as the time of exposure to the mercury vapor lamp is increased, up to fifteen minutes, front and back. Three treatments a week are given. Although when the method was first employed the number of treatments was from sixteen to twenty, now a minimum of thirty treatments are given. This change was made after observation that those having had a greater number of treatments remained well longer and were less subject to recurrences. In some cases as many as sixty treatments have been given. Improvement may manifest itself early in some. Others do not show much improvement until after the tenth or twelfth treatment.

The results obtained in 600 cases, to date, have been very satisfactory. Many of those who were symptom-free at the termination of the treatment have continued so. In others, there have been recurrences. Some I have been able to trace. Results obtained at the end of the treatments are as follows, arranged according to the most probable etiologic factors:

CAUSE	RESULT
Adhesions .... 123 Cases	61 cases (or 49%) symptom-free
Traumatic .... 100 Cases	89 cases (or 89%) symptom-free
Infectious .... 58 Cases	28 cases (or 48%) symptom-free
Allergic ..... 7 Cases	4 cases (or 57%) symptom-free
Ulcerative .... 12 Cases	2 cases (or 16%) symptom-free
Tuberculous ... 4 Cases	2 cases (or 50%) symptom-free
Endocrine	
Neurogenous 293 Cases	223 cases (or 76%) symptom-free
Diverticula .... 3 Cases	3 cases (or 100%) symptom-free

In closing I would strongly emphasize the following points in the treatment of colitis:

- 1.—Establish a diagnosis, as exactly as possible, as to the etiology and type.
- 2.—Treat the cause as well as the condition.
- 3.—Do not use physical therapy alone.
- 4.—Be certain that the patient has been given a sufficient number of treatments.

If the above conditions are observed, I feel safe in making the assertion (based on my own experience of six years) that the results obtained will be very gratifying, especially in cases of endocrine, neurogenic, traumatic and diverticular origin. In these cases, cures or marked improvement will result in over 75 percent.

1160 Park Ave.

#### EULOGY OF THE DOCTOR

By ROBERT LOUIS STEVENSON

*There are men and classes of men that stand above the common herd—the soldier, the sailor, the shepherd not infrequently; the artist rarely; rarer still the clergyman; the physician almost as a rule. He is the flower of our civilization and when that stage of man is done with, only to be marvelled at in history, he will be thought to have shared but little in the defects of the period and to have most notably exhibited the virtues of the race. Generosity he has, such as is possible only to those who practice an art and never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So it is that he brings air and cheer into the sick room and often enough, though not so often as he desires, brings healing.*

# The Use of Physical Agents in the Treatment of Injury and Disease

By FRANK H. WALKER, M.D., Shreveport, La.

**P**HYSICAL Agents are, perhaps, the oldest remedies used in medicine, yet for a long period of time these were disregarded by orthodox Medicine. However, with modern research and advancement in diagnostic and laboratory methods, the value of physical agents has recently been appreciated.

There are still many physicians today who are almost totally ignorant of the physics, uses and results of physical agents in the treatment of injuries and disease, and are therefore depriving their patients of efficient remedies. The physician who prescribes ice bags, hot-water bags, sun baths and the like, does not realize, perhaps, that these are physical agents, but takes them as a matter of course in the line of routine treatment. The thermal effect of cold and heat is lost sight of, and the chemical effect of the sun's actinic rays is not considered.

Bier's bandage was long used to produce hyperemia, with excellent results; but now diathermy will do the same things in a much shorter time. Baths at certain spas have always been prominent as curative measures; but the thermal effect is all that could be expected of them and our modern means of applying hydrotherapy are far superior to any so-called medical baths. The massage after a bath at famous bath houses is purely physical and tends to do more for the patient than the mere properties of the water.

When we speak of physical agents, the term is meant to imply any form of treatment which is neither medical nor surgical, yet whose value is commonly recognized as a means of curing disease or repairing injury. Physical agents include hydrotherapy, phototherapy, heliotherapy, mechanotherapy, occupational therapy, radiotherapy (x-rays and radium), thermotherapy, and electrotherapy, which last includes high-frequency currents, static electricity, galvanism, etc. Besides these, there are added; manipulation, vibration, massage and others which apply to special cases. Diversional therapy is now popular, to keep the patients cheerful and happy. It makes them cooperative and interested and they find themselves using an

injured member or losing a mental complex which has hovered over them for many months.

The application of physical agents to injury and disease requires special training, as do other specialties in medicine. Physical therapy cannot be applied in a haphazard manner. Experience is as necessary in this, as in other branches of medicine. One must be familiar with the physics and mechanism of the apparatus used, as well as the minute and gross pathologic conditions to be treated. Certain agencies are stimulative, others sedative; some are chemical while others are purely physical and still others psychic. Whatever the effect, a correct knowledge of the agency should be acquired before it is used. It is just as true that an office full of electric appliances does not make a physical therapist, as it is that an office full of instruments does not make a surgeon; yet as much can be done with a few physical agencies as can be done with a scalpel and few forceps.

## HYDROTHERAPY

Among the oldest of physical agents is hydrotherapy. All recognize the value of water in the treatment of numerous conditions. The bath, hot or cold, has specific uses. The cold bath stimulates cell activity, raises blood pressure, increases oxygenation, increases the production and elimination of carbon dioxide, stimulates digestion, improves the appetite and acts as an excellent tonic to the asthenic individual. Hot baths are sedative, and are useful in treating chronic diseases, such as cardiorenal and vascular conditions, diabetes, nerve conditions and mental disorders. Local inflammatory processes following injury are admirably treated with warm baths. The so-called "whirlpool" baths are useful to restore function in impaired limbs, and much of their virtue lies in the heat of the water, which flows rapidly over the part treated. By increasing the speed of the water, its temperature can be tolerated at a much higher degree, which is done in the whirlpool bath. Numerous skin conditions are

treated with baths, of one sort or another.

#### ACTINOTHERAPY

Phototherapy and heliotherapy are commonly called light therapy. The chief active principle derived from heliotherapy is the ultraviolet energy, which is a most powerful chemical agency. The body chemistry can be completely changed by systemic irradiation, and locally if confined to one part. It quickens metabolism, increases oxygenation, eliminates carbon dioxide and fixes calcium, phosphorus and other elements in the tissues. Numerous skin conditions are relieved by ultraviolet treatments. Indolent ulcers, either on the skin or mucous membranes, are made to heal. Skin tuberculosis, as well as pulmonary, renal and other forms of the disease are benefited by the actinic rays.

Radiant light and infrared rays are also light rays and have definite therapeutic effects. Infrared is excellent for deep-seated pain, especially back injuries; also for heating joints, either injured or arthritic. Radiant light has a good tonic effect when applied to the body; and it also heals indolent ulcers, in combination with ultraviolet irradiations.

Carbon arc irradiation has much the same effect as have infrared and ultraviolet treatments combined.

#### DIATHERMY

One of the most effective of physical agencies is the high-frequency current, which is commonly called diathermy. Diathermy is either medical, surgical or systemic. Medical diathermy is the passage of a high-frequency current through body tissues without destructive effect, while surgical diathermy causes destruction of tissue. Systemic diathermy is the passage of the current through the entire body, and is known as *auto-condensation*.

Medical diathermy is useful in treating injuries to bones, joints and muscles. All sorts of contusions, strains and sprains yield readily to this agency. Surgical diathermy or electrosurgery has its greatest possibilities in accessible malignant neoplasms. Any accessible cancer, as those of the skin, mouth, rectum, cervix and the like, is best treated by electrocoagulation. Hemorrhoids, tonsils, fissures and caruncles can be removed, in selected cases. It is the method of necessity in hemophiliacs, when surgery is indicated, because the operations are

bloodless and, with due respect for vascular structures, secondary hemorrhage is practically nil.

Auto-condensation is useful in treating systemic conditions and chronic conditions, such as essential hypertension, nephritis, diabetes, chronic bronchitis and also general asthenic conditions where an elevation of body temperature is needed. Since it has recently been proved that high temperature is essential to the betterment and cure of certain conditions, auto-condensation offers an ideal and practical way of producing this effect.

A technic whereby systemic temperature can be raised, is to place the patient on an auto-condensation pad, with a large, block-tin electrode on the abdomen. The patient is covered with a blanket and the current turned on gradually and increased so that the oral temperature will be elevated from 2 to 5 degrees. Take the temperature every few minutes until the desired heat is obtained. If sweating is too great, atropine may be given to prevent this. Also an ice bag may be placed on the head to prevent heat prostration. The patient is treated from twenty to forty minutes every other day and is allowed to cool off gradually. Care must be exercised to prevent taking cold or producing undue weakness. Each case will be a law unto itself, and it is better to go slowly rather than to use a fixed amperage in all cases. Patients treated in this manner show marked improvement after all other measures have failed, hence the high-frequency current has a wide range of value as a therapeutic agent.

#### GALVANISM AND THE SINUSOIDAL CURRENT

Galvanism is another agent of great value. It is a chemical current, having definite polarity, and each pole possesses specific chemical properties. This has distinct virtue in treating gynecologic conditions, such as uterine bleeding, fibroids, and cervical erosions. The positive pole is acid in reaction and sedative in effect. It is also a vasoconstrictor, hardens, contracts and dehydrates tissue and relieves inflammation. The negative pole is alkaline in reaction and caustic in effect. It softens and relaxes tissue and is used extensively to break up fibrosis anywhere, but especially about joints. Painful neuritis is relieved by this current, and ionization of chemicals into the body is also accomplished by it.

Along with galvanism is the sinusoidal current, which is useful in treating paralysis and intestinal stasis. It is also excellent for nerve pain, such as sciatica and brachial neuritis, and is often used to restore muscles which have atrophied, due to disuse while lying dormant in a splint.

The sinusoidal is purely a mechanical current, as it has no polarity and its sedative effect in neuritis lies in its inhibition of painful autonomic nerves. Its effect on paralyzed parts is due to its rapid alternation, which causes contraction and relaxation in sluggish muscles.

#### X-RAYS, RADIUM AND OTHER AGENCIES

Radium is useful in malignant disease and, in early cases, excellent results are obtained. Other neoplasms are also successfully treated with it.

The value of x-rays has long been known, for their happy effect on benign and malignant neoplasms, skin eruptions, hypothyroidism and enlarged thymus glands, as well as pertussis, asthma and carbuncles. Menorrhagia, metrorrhagia and non-inflammatory conditions of the uterus, such as myoma and fibroma, often yield to x-ray treatment.

Besides these agencies there are others of minor importance, such as vibration, manipulation, massage and therapeutic exercise. These have definite indications and can do

much good when used with reason, common sense and medical judgment, which must be displayed in every case. Should a case yield better to either medicine or surgery than to physical agents, by all means they should be used. However, there are many borderline cases, where neither medicine nor surgery will afford complete relief, in which physical agents are worth a trial.

Different agencies will sometimes produce the same effect, and the physician must decide which is the most potent for the case at hand. If a case does not yield to one, another should be employed. To substitute one drug for another which does not produce the desired effects is common practice. Why not apply the same tactics to physical therapy? It is just as fair to physical therapy as it is to medicine or surgery.

Physical agents, as efficient remedies for injuries and disease, are now necessities. No longer are they fads or fancies, but acknowledged realities, having definite and positive indications, but, first and foremost in all medical problems, diagnosis is the salient feature of every case. With a correct diagnosis and a thorough understanding of the pathologic changes and physiologic repair, physical therapy can be applied with equal success to either medical or surgical methods.

Ricou-Brewster Bldg.

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### A TOOL OF THE DEVIL

*It was once announced that the Devil was going out of business and would offer all his tools for sale to anyone who would pay the price. On the night of the sale they were all attractively displayed, and a bad-looking lot they were! Malice, hatred, envy, jealousy, sensuality, deceit and all other implements of evil were spread out, each marked with its price. Apart from the rest lay a harmless-looking, wedge-shaped tool, much worn and priced higher than any of the others.*

Someone asked the Devil what it was. "That's Discouragement," was the reply.

"Why have you priced it so high?"

"Because," replied the Devil, "it is more useful to me than any of the others. I can pry open and get inside a man's consciousness with that, when I could not get near him with any of the others; and when once inside, I can use him in whatever way suits me best. It is much worn because I have used it with nearly everybody, as very few people yet know that it belongs to me."

It hardly need be added that the Devil's price for Discouragement was so high that it was never sold. He still owns it and is still using it! —Theosophical Messenger.

# THE SEMINAR

CONDUCTED BY

MAX THOREK, M.D. (*Surgery*)

GEORGE B. LAKE, M.D. (*Medicine*)

[NOTE: Our readers are cordially invited to submit fully worked up problems to the *Seminar* and to take part in the discussion of any or all problems submitted.

Discussions should reach this office *not later* than the 1st of the month following the appearance of the problem.

Address all communications intended for this department to *The Seminar*, care CLINICAL MEDICINE AND SURGERY, North Chicago, Ill.]

## PROBLEM NO. 8 (MEDICAL)

Presented by Dr. Chas. E. B. Flagg  
(SEE CLIN. MED. & SURG., JULY, 1929,  
p. 489)

**Recapitulation:** A girl, 17 years old, was seen in consultation Aug. 27, 1928.

The family and personal history were essentially negative, except that the patient's menses had been irregular for a year (last two periods Mar. 15 and May 15, 1928), and that her weight had fallen from 140 to 96 pounds between May and Aug. 20; epistaxis Aug. 15.

**Present Condition:** Constant pain in the abdomen and nausea, with vomiting of blood-stained mucus; very weak.

**Examination:** Temperature, 99°F. (sometimes subnormal); pulse, 132; blood pressure, 130/50; abdomen scaphoid; lymph nodes palpable; thyroid and uterus not enlarged; urine, negative; blood, leukocytes 10,000, with 32 percent lymphocytes; otherwise negative.

**Requirement:** Diagnosis and treatment.

DISCUSSION BY DR. DIETRICH  
KLEMPNER, CHICAGO

The palpable lymph glands may be tuberculous. The temperature curve of 99°F. to subnormal is compatible with the dry,

fibrous form of tuberculous peritonitis; and so is a white cell count of 10,000.

Nothing is said about the spleen, and the splenic findings are, as a matter of fact, of little diagnostic help. A small spleen is the rule in tuberculous peritonitis and a large spleen may be amyloid or tuberculous.

The presence of a tuberculous focus elsewhere is of prime importance for the diagnosis of tuberculous peritonitis. The lungs are pronounced clear. Pertussis and influenza in 1918 date back too far to be of any significance in this regard. Tubes and ovaries are frequent starting points. The uterus has been found not enlarged. Should there be lesions of the adnexa that escaped palpation, it is possible that some credit for the irregular menses and the low basal metabolism is due to tuberculous oophoritis. We ought to be able to palpate, in the presence of a scaphoid abdomen, some resistant masses of matted intestines.

A localized, fibrous, tuberculous peritonitis is consistent with a state of general fair-feeling; on becoming generalized, the peritonitis may bring on the acute abdominal signs this patient presents. A negative von Pirquet test, ruling out the diagnosis of tuberculosis, would be of great value.

The next diagnostic help, if a perforated gastric ulcer can be ruled out, is an x-ray examination of the intestinal tract.

This leads us to a diagnostic consideration of the abdominal catastrophe. Missing menstrual periods and vomiting may spell pregnancy—in this case, probably, a ruptured ectopic pregnancy. A scaphoid abdomen is not characteristic of a rupture, and besides, the uterus is not enlarged and there is no mass palpable.

A perforated gastric ulcer would cause pain, prostration, vomiting, a scaphoid ab-

domen and tachycardia. The previous history of an ulcer case gives, as a rule, typical dyspeptic complaints, though occasionally a perforation or hemorrhage is the first sign of the ailment. Ulcer may cause cachexia through sitophobia. But the onset of perforation, with the excruciating pain localized in the upper abdomen, is given, as a rule, much more definitely than in this history.

And how about the liver dullness? If it should be replaced by tympany, in the presence of a scaphoid abdomen, that would speak in favor of free gas in the peritoneal cavity.

**Summary:** If the liver dullness is preserved, the diagnosis of perforated gastric ulcer should be thrown out. Confirmatory facts for or against tuberculous peritonitis should be sought—x-ray data and a von Pirquet test. A negative von Pirquet would call for an exploratory laparotomy, the result of which is difficult to anticipate. It may reveal a rare condition like lymphosarcoma or a perforated tuberculous ulcer.

#### SOLUTION BY DR. CHAS. E. B. FLAGG

My tentative diagnosis was tuberculous peritonitis. The attending physician inclined to some endocrine disturbance.

Infrared ray application to the abdomen and thyro-ovarian extract were given.

There was gradual improvement, cessation of vomiting and progressive gain in strength and weight.

She visited her doctor at his office from time to time.

January 23, 1929, I saw her again and confirmed the diagnosis arrived at the day before by her attending physician.

January 27, 1929, I was hurriedly summoned. There were severe cramps in the abdomen, unrelieved by the medicine her doctor had left, and he was unavailable. The os was fully dilated and the fetal head was presenting on the perineum.

She was hurried to the hospital and a 6-pound girl was spontaneously delivered soon after her arrival.

Before passing judgment on the lack of diagnostic acumen of her doctor and myself, please consider that she visited the doctor's office unattended and he made no pelvic examination until called upon by her father to explain the meaning of her large abdomen.

#### CLOSING DISCUSSION BY DR. GEORGE B. LAKE, CHICAGO

It may seem fruitless to discuss this problem after Dr. Flagg's solution, but to my mind, it still offers interesting possibilities. Of course the data for making a diagnosis were not complete, but they seemed sufficient to Dr. Klemptner, whom I personally know to be an unusually keen diagnostician, and also to me, to make a diagnosis of tuberculous peritonitis. We need not feel ashamed of our error, in view of the fact that two physicians who actually saw and handled the patient were as far astray as we were.

Missed diagnoses of pregnancy are not so rare as some may think. I knew of a case where an exploratory laparotomy was done on a woman, to determine the nature of an obscure abdominal tumor, which was found to be a pregnant uterus.

In a married woman, the combination of cessation of menstruation and vomiting should, of course, always suggest the idea of pregnancy. Why then should the same combination fail to excite our suspicions when it occurs in a single woman? Perhaps many of us are too timid in demanding pelvic examinations on those who are, presumably, virgins, when symptoms point to some abnormality in the uterus and adnexa.

Even with such an examination in this case the condition might not have been clear, since the abdomen was reported as scaphoid on Aug. 27. Such a finding seems odd, in view of the fact that she was then three months advanced in her pregnancy, but it is not unheard of.

The case looked to me so much like definite intra-abdominal disease that I was not sure that such a condition did not exist, along with the pregnancy, so I telegraphed to Dr. Flagg for last-minute information. His reply dated Aug. 16, reads: "Present condition girl Seminar problem eight, excellent. Has not needed services physicians since birth her child."

The emaciation and many of the other symptoms may well have been of psychic origin, due to her perturbation over a condition to which she knew she had been exposed and whose nature she probably suspected.

Let this problem stand as a plea for complete examinations in every case that is at all obscure, for only such studies will preserve our professional reputations.

# CLINICAL NOTES AND PRACTICAL SUGGESTIONS

## Diathermy in Infections

THE various bacteria that attack the human body have a variable resistance to heat. A temperature that effectively kills one organism and its spores will not be sufficient to do the same to another. This is the knowledge gained in the laboratory. How nearly it holds true clinically I am not prepared to say. The deductions in this paper are based on theory, plus attempts to determine whether the theory will hold true.

If the invading organism of infection thrives best at body temperature, and if the fever accompanying a general infection is one of nature's defenses in combating the infection, by making it too hot for the best propagation of the invaders, it would seem proper to make it, artificially, too hot for them, in a local infection.

We also know that a very high temperature for a short time will cause a specific amount of sterilizing effect; and, as lower temperatures are employed, a greater length of time is required to accomplish the same results.

All of us have had our share of troubles with infected, punctured wounds, and it is not pleasant to subject the patient to the torture of making open wounds of them.

The theories mentioned appeared to me to be worthy of a trial, and the first patient who came in after I determined to apply them was a man who had run a pitchfork tine for an inch or more, obliquely, into the back of his hand. Within twenty-four hours he was in my office with a badly swollen hand and suffering considerable pain.

I applied a block-tin electrode, having about six square inches of surface, on either side of the hand and slowly brought up the

amount of current (amperage) to the patient's tolerance. For thirty minutes I held it there, frequently testing whether he could stand a greater amount of current. When the patient left the office I instructed him to come back the next day, but it was several days before I again saw him and then he assured me that he was back at work the day after the first and only treatment and expressed himself as highly gratified with the prompt results obtained.

The next patient to present himself had stepped on a nail the day before, and it is needless to describe his condition, for we all see plenty of these cases. The same treatment was applied to his foot, and the next day he was again using the foot, cautiously.

Since then a number of similar cases have been similarly treated, with gratifying results. Suffering is decreased to a minimum; loss of time to the patient is shortened; the patient is much pleased; and I get a better fee than I would by any other means.

This short paper is merely to state the means employed and the results obtained, and no effort has been made to recite all that happens in the patient's hand or foot when diathermy is employed to combat infection.

I must sound a note of warning as to the application of diathermy in infections. It is only in the beginning of a local infection that I feel justified in employing it. I can well visualize what might happen if it were used in an advanced infection. I will not dispute that diathermy, employed in an infection four or five days old, *might* accomplish some good, but personally, I am inclined to believe that the effect would be

much the same as it would in an acute, infectious appendicitis—I believe a violent, infectious explosion would occur.

F. W. SCHROEDER, M.D.

Strasburg, Ill.

### Bandage for Holding Electrodes

**I**N GIVING diathermy and other electrical treatments, it is important that the electrodes should be held firmly in place, without danger of their losing contact with the skin or slipping.

At the same time, if a bandage is applied, it must not be so tight and rigid as to constrict the limb when it swells, as it often does under such treatment.

I have found the Empire bandage (Hall and Cary) the best of any I have tried for this purpose. It gives sufficient tension to assure an even pressure of the electrodes, and is elastic, so that no constriction occurs if or when the treated part swells. The price is moderate and the bandage is washable, so that it may be used repeatedly.

HARLEY U. CRAMER, M.D.

Lockport, N. Y.

### Comparison of Carbon Arcs

**T**HE visual demonstration of the difference in characteristics of the light emitted by the various carbon arcs now being used is accomplished by means of an apparatus perfected recently in the Cleveland laboratories of National Carbon Company, Inc. Built in cabinet form, it offers three distinct methods of studying the variation in light characteristics. An ultraviolet spectroscope offers direct, qualitative comparison of the light from the several sources; a cadmium cell provides a means of determining the relative intensity of radiation in the vital ultraviolet range; a thermopile, with a galvanometer and suitable absorption screens, permits observation of the total radiant energy from each light source and the segregation of this energy into bands limited by the light-transmitting characteristics of the screens.

The upper part of the cabinet is divided into nine compartments, each a miniature carbon arc lamp, with switches and control mechanism conveniently located on the front of the cabinet. Along the shelf in front of these compartments is a track on which is mounted a carriage supporting the observation instruments.

Beside the spectrum, in the field of view,

is an illuminated scale, divided into Angstrom units, so that the wave-lengths of any portion of the spectrum under observation can be determined. With this spectroscope qualitative comparison can be made of the ultraviolet characteristics of different light sources. It is also possible to show the lower limit of the transmission range of various types of ultraviolet transmitting glass.

The cadmium cell consists of a quartz vacuum tube, coated on the interior with cadmium and provided with suitable electrical terminals. A ninety-volt battery is connected across the terminals of this cell to the gold leaf of an electroscope. Light entering the cell ionizes the cadmium coating and permits an electrical charge to pass from the battery to the electroscope, repelling the gold leaf from its support. As the leaf is repelled it touches a grounded contact which takes off the charge and permits the leaf to fall back to normal position, where it again absorbs a charge and swings outward. The rapidity with which the leaf of the electroscope swings back and forth is a measure of the intensity of the activating light falling on the cadmium cell.

The operation of this cell is similar to that of the photo-electric cell used in connection with television and sound pictures, with this important difference: Whereas the ordinary photo-electric cell is sensitive to visible light, the cadmium cell is only slightly so, but is very sensitive to ultraviolet rays, especially to wave lengths below 3150 Angstrom units.

The thermopile is a very sensitive thermocouple, which generates an electric voltage proportional to the total radiant energy falling upon it. The fluorite enclosing the thermopile transmits all radiation from 1700 to 120,000 A. U. The voltage generated by the thermopile is, of course, very low and is read by means of a sensitive mirror galvanometer. The use of various screens between the thermopile and the source of light permits segregation of the radiant energy into several bands. The limits of these bands are not sharply defined, since the transmission range of most light filters does not have a sharp cut-off point. Nevertheless, valuable information can be obtained in this manner for comparing various light sources, as regards distribution of radiant energy over the entire range from 1700 to 120,000 A. U.

In comparing the light from two or more types of arc carbons installed in this demon-

stration cabinet, the ultraviolet spectroscope is used for qualitative comparison alone, noting the strong lines in the ultraviolet region and determining their approximate wave length.

With the cadmium cell, electroscope and helio-glass filter, the relative intensity of radiation in the zone of vital ultraviolet rays may be defined.

The thermopile, galvanometer and filters provide a means of making quantitative comparison in several zones including the therapeutic ultraviolet rays, up to 3200 A. U.; the non-penetrating ultraviolet and visible rays (3200 to 6500 A. U.); the penetrating visible and infra-red rays (6500 to 14,000 A. U.); and the non-penetrating heat rays (14,000 to 120,000 A. U.).

It is apparent that, with the facilities offered by this demonstration cabinet, a definite comparison of the characteristics of several light sources is possible, over the entire range of the spectrum

M. J. DORCAS, A.M., Ph.D.  
Philadelphia, Pa

### Physical Therapy Training

THE American College of Surgeons is making some very pertinent suggestions concerning the practice of physical therapy. It is recommended that physical therapy should be under the direct control and recommendation of medical men, and that those taking training in physical therapy should be graduate physicians. Until recently there have been no recognized facilities for the training of physicians in physical therapy in an accredited medical school. Nearly all of the instruction has been given under the auspices of manufacturers, or physicians having strong commercial instincts, and in consequence a very valuable form of treatment, when intelligently employed, has become altogether too greatly discredited.

Recently, the Northwestern University, at Chicago, has inaugurated a post-graduate course in physical therapy which has the approval of the American College of Surgeons. The course requires approximately thirty days, and is adapted particularly to hospital requirements. Although it is not possible in a short period of one month to cover all phases of physical therapy, in both theory and practice, it is believed that any physician who proceeds intelligently after he has had this course will be able to render

very valuable services to the hospital and to the members of the staff of any hospital. It has been suggested that, for small hospitals, the roentgenologist may take a physical therapy course and assume the directorship of the physical therapy department, in addition to his other duties. If a physical therapy director is not chosen from the hospital, it is often quite possible to secure a good man from the ranks of the graduate interns. The point is well taken that physical therapy is a very valuable adjunct in the treatment of many abnormal conditions, but the treatment should be intelligently employed and this requires the services of one who has been trained specially in physical therapy work.—Editorial, *J. Indiana S. M. S.*, July, 1929.

### Diathermy in Intermittent Claudication

(A Reply to Dr. Allen)

THE case presented by Dr. D. E. Allen in *CLIN. MED. AND SURG.*, July, 1929, p. 497, is undoubtedly one of *intermittent claudication*, and I would suggest the use of diathermy for the condition, once daily or three times a week. The current should be used to the patient's tolerance, until the condition is relieved.

Also, I would advise the injection of 50 to 500 cc. of a 2-percent solution of *potassium citrate* in sterile water, intravenously, once a week to decrease the blood coagulability.

THEO. H. MADAY, M.D.

Chicago, Ill.

[There can be little doubt that Dr. Allen's case is one of *intermittent claudication*. The symptoms are perfectly typical. This condition is also known as *dysbasia angiosclerotica intermittens* and *angina cruris*.

As to the etiology, it is generally recognized as being due to *arteriosclerosis*. It sometimes accompanies organic cardiac disease, *angina pectoris* and *thrombo-angiitis obliterans*.

The treatment is, essentially, that of the underlying *arteriosclerosis*. Dr. Maday's suggestion of using diathermy seems sound and reasonable, as heat almost always helps these patients. Massage, too, is frequently useful.

Iodides, administered in moderate doses, over long periods, may be serviceable; and erythrol tetranitrate or nitrates may relieve

the attacks. *Ephedrine*, also, is worthy of a trial, as well as *hyoscyamine sulphate*, 1/500 grain (0.13 mgm.) as needed, for possible relaxation of the vascular spasm. The intravenous injections of potassium citrate, mentioned by Dr. Maday, would seem to be superfluous, unless the patient's blood has been shown to be unduly coagulable.

A carefully regulated, hygienic mode of life should be adopted, including much rest of the legs, in an extended position. Tobacco may have nothing to do with this condition, but since it is frequently mentioned as a causal factor, its excessive use should be forbidden.

The prognosis is that of arteriosclerosis. —Ed.]

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### Ultraviolet in Splenomegalic Polycythemia

**S**PLENOMEGALIC polycythemia, also called Vaquez-Osler's disease, is readily recognized by the prominence of the three cardinal symptoms: cyanosis, polycythemia and splenomegaly.

It is considered to be the result of some autotoxemia acting upon the bone marrow, producing a greatly increased number of erythrocytes, increased hemoglobin content of the blood, and increased destruction of red cells in the spleen, with resultant enlargement of that organ.

The prognosis is poor, the usual length of life from the beginning of the disease to a fatal termination being from one to six years. The only treatment recommended is venesection.

*Report of case:* A. C., 55 years of age, was referred to me in 1924, with a diagnosis of possible cancer of the stomach. He had been confined to bed with pain in the abdomen and weakness. His face, hands and mucous membranes were a deep purple color, and the spleen extended for a full hand's breadth below the left costal margin.

Examination of the blood showed the following: Hemoglobin, 90 percent; red cells, 5,100,000; leukocytes, 37,200; polymorphonuclears, 95 percent; lymphocytes, 1 percent.

As a palliative measure he was treated with the air-cooled mercury-in-quartz lamp, giving an erythema dose (beginning with 4 minutes, at 20 inches, 2 treatments each week, gradually increasing the time and decreasing the distance), for

about two months. His weight increased from 145 to 162 pounds, and he felt so well that he discontinued treatments and returned to work.

During 1928 he had a return of the old symptoms (weakness, pain in the abdomen, hemorrhages from the mouth, nose, rectum, and bladder, loss of weight) and the cyanosis of his face and mucous membranes had increased, if this was possible.

Examination of the blood, March 23, 1929, showed the following: Hemoglobin, 110 percent; red cells, 7,080,000; leukocytes, 23,500.

Ultraviolet treatments were begun again, and in one month he considered himself well enough to return to light employment. All hemorrhages had ceased and he had made a slight gain in weight.

R. STEWART MACARTHUR, M.D.  
Los Angeles, Calif.

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### Care in Civil Service Examinations

**T**HE Government, and applicants for examinations themselves, are frequently embarrassed by the improper execution of medical certificates attached to applications for Federal civil service examinations.

New appointees are required to undergo a physical examination by a Government medical officer before entering upon duty. For many examinations a preliminary medical certificate is required in connection with the application for examination, for consideration in determining eligibility for examination and, in some cases, for rating on the element of physical ability. Frequently, Government medical officers find in the examination, at the time of appointment, physical disqualifications which must have existed when the preliminary medical certificate was executed by the private practitioner, although no mention of such physical defects is found in the private practitioner's medical certificate. Such a situation presents a problem to the Government, especially if the appointee has traveled a considerable distance to accept the appointment. In many cases the appointment must be canceled, with resulting loss of time and money to the disappointed applicant.

The Civil Service Commission feels that these discrepancies between medical certificates executed by private practitioners and those made later by Government medical officers are due, in some cases, to careless-

ness upon the part of the private practitioners and in others to a liberal attitude deliberately assumed in the mistaken belief that by ignoring or minimizing physical defects the applicant is assisted in obtaining employment.

The Civil Service Commission's forms for medical certificates attached to application blanks are comprehensive and clear. If all private practitioners will exercise due care when filling out the certificates they will, not only render a service to the Government, but will also give the maximum service to the applicant who pays the fee for the preliminary physical examination.

U. S. CIVIL SERVICE COMMISSION,  
Washington, D. C.

### Physical Therapy in Skin Cancers

**I** WISH to call attention to the methods of treating skin cancers, which I have been using, with more or less important modifications, for thirty years. Success always depends, of course, upon early recognition and prompt treatment of the malignant lesions.

Skin cancers usually appear on the face, head or neck and are, as a rule, of two main types; the basal-celled and the squamous-celled, the latter usually affecting the lips and being the more malignant.

The basal-celled type is not prone to early metastasis and, if treated early, can generally be cured by almost any destructive method—surgical removal, caustics, the actual cautery, electrolysis, high-frequency currents, both mono- and bi-polar, and also by x-rays.

My technic is to destroy the entire growth or ulcer with the Oudin (mono-polar) current, and follow this, immediately, by a heavy dose of x-rays, applied to the region draining the growth, so as to kill any immature cells which may be journeying away in the lymphatics. If, after three to six weeks, conditions are not perfect, the dose is repeated.

The squamous-celled tumors are much more malignant and more prone to extend by way of the lymphatics. In these cases my treatment is more thorough, both in the primary destruction and in the following radiation.

It is to be remembered that the x-rays have little effect on the older or mature cancer cells, which must be totally ablated or

destroyed by some form of cauterization. After that, the roentgen-rays will kill all new or immature cells, including those which may be traveling in the adjacent lymph channels.

H. C. CHANCE, M.D.  
Cumberland Gap, Tenn.

### Physical Therapy Memoranda from Europe

**M**Y RECENT European trip was undertaken largely for recuperation, but I observed in passing one or two points of interest to physical therapists.

I saw the two carbon arc lamps, set in a special frame, which were used in treating King George of England. I also learned (what has not been published, so far as I know) that just before the secondary rib resection, which was recently performed to relieve his chronic empyema, his physicians decided to use diathermy in treating that condition. So he is getting good physical therapy, though somewhat tardily.

The Germans are paying a great deal of attention to carbon-dioxide-gas and foam baths, and seem to be getting results.

Physical therapy is making distinct progress in Europe every year. They make much use of low-voltage currents and diathermy, and the interest in actinotherapy is really greater than that in the United States.

In September (4 to 8), 1930, the 300th anniversary of the freedom of Belgium will be celebrated at Liege. At that time there will be an International Congress on Physical Therapy, which should be a very notable occasion.

NORMAN E. TITUS, M.D.  
New York City.

### "Collections—If Any" (A Rejoinder)

**T**HE article on pages 490-91 of the July CLINICAL MEDICINE AND SURGERY, by Mrs. Florence Aird, is quite interesting, and contains much truth.

Why have we (the professional health pilots) no law, by Government or State, for our protection? The many trades, and even the innkeeper, have some recourse for collecting their bills; but there is none for the medical attendant.

"The poor ye have with you always," and it is this class which is dependent on the

mercies of those who can and will give a helping hand. Who in this world gives more freely and willingly to this class than does the family physician? Yet he receives, in many cases, little or no financial remuneration for his hours of sacrifice and labor.

After 42 years in actual service, where I have made thousands of dollars, and *earned* thousands more than I ever received, I have reached the point where age and infirmities have decreased my usefulness, and where financial balances are not equal to the command, "Owe no man anything."

What is the answer? The State provides no pensions for the medical "derelict," and yet there are hundreds of this class, scattered through the rural sections of these United States. The only answer that I can see is, "Do unto others as you would that they should do to you," and *keep up the fight*.

J. R. SMITH, M.D.

Warsaw, Mo.

#### A LAYWOMAN REPLIES

Answering the remarks made in the July CLINICAL MEDICINE AND SURGERY, by Florence Aird, of Carterville, Illinois, I should like to suggest that the medical man has expended a world of time, patience and money in training and equipment to keep up his practice. Therefore he is justly entitled to any pecuniary reward it is possible to give him, because to save a life is a priceless service.

But we, less able people, cannot pay what a service like that is worth, but only what we can, according to our means.

Therefore, again, if more is asked than we are able to pay we must either beg, borrow, or steal the doctor's service. Respectable people do not like to do these things and many drag along, needing attention, who will not ask in time.

I would suggest that an average of the wages or earning power of the individual be made, and ten percent of that be charged for operations, up to a certain fixed standard.

In most small towns the rates for office calls are about two or three dollars, house calls a little more. I would suggest that a small charge be made for telephone advice, also, and that house calls out of the town limits or between 7 P. M. and 7 A. M. be charged at double rates, in justice to the long-suffering country doctor.

The city physician could possibly (or

does) have schedules approximately on the same plan.

Hospitals could be run more on the order of refined hotels, either inclusive or exclusive of extras, the operating room fee being included in the ten percent charge.

I am heartily in favor of monthly bills, for obvious reasons.

I don't believe that, on this plan, there would be many who would need to be served gratis. Some calls are longer than others; but, again, some are very short, so they about average.

A physician or surgeon who really loves his work, probably gets some compensation from the joy of saving life or alleviating human suffering.

MRS. GEO. BANGE,

Picayune, Miss.

#### The Doctor's Part in the Cost of Medical Care

I HAVE read with much amusement several articles, in both medical and lay journals, as to the high cost of medical care, and I notice a committee has been appointed to investigate the cause and, if possible, to suggest a remedy. I believe that the greatest cause lies in the physician himself.

I read in two of my magazines of last month and in my daily paper of yesterday of instances in which the cost could have easily been one-half what it was, had the physician in charge or attendance, been willing to use *his head* and what equipment he no doubt had in his possession.

One case in particular—that of a child receiving a bad burn—was rushed nearly forty miles to a hospital for treatment. The physician could have attended her at home, and in that way have saved much expense and avoided subjecting her to hours of delay; and besides, the shock would have been much less.

We physicians are becoming altogether too dependent on the assistance of the other physician, the nurse and the hospital. Instead we should be more prone or willing to make use of our own ability and resources. Here, in a new country, we can not get any help in an emergency, but I must say that we have remarkably good success. I care for all burns, of whatever degree, myself, and have done well with them.

I feel that we make a great mistake in taking cases to a hospital, when we can attend to them at their homes. By doing so we are, not only adding to the financial burden of the family, but also overloading the hospital unnecessarily; and besides, we are doing unjustly by the patient.

A hospital, generally, is a poor place for a patient with influenza, pneumonia, or typhoid fever. In fact, most cases for medical treatment will do better at home; also those requiring only minor surgery.

Many a physician is unwilling to stay with a patient and do what he is supposed to do for him when he is called. Instead, he will shift the burden on "George" to get along as best he can. I have often remained with a patient for several hours and been well rewarded for my time and efforts—if not financially, at least by knowing that I did my duty to my patient and by his eventual recovery, in most cases.

I have nothing against the hospital or the nurse, but I believe they are both overworked by the physician who is too dependent or indifferent to use his own resources and ability.

In going through a hospital I have seen a patient sent there for *constipation*! All she needed was an enema and instructions as to how to live to avoid a repetition of the condition.

When the diagnosis of a case is evident from the history, symptoms and physical examination, there should be no necessity for subjecting the patient to expensive tests and laboratory studies.

A good, well-trained nurse in the home is preferable to hospitalization and more economical, in the long run. The family, also, is generally better pleased and better able to go about doing their daily tasks—their morale is not so greatly upset.

The common run of "practical" nurses are the most dangerous animals running at large today. They do not know their limitations and can sometimes do more mischief in five minutes than the best of physicians can remedy in a month—if they ever do overcome the mischief done.

Another thing that causes the expense of medical treatment to mount skyward is the fact that we do not always send our cases of major surgery to a hospital for operation soon enough. If sent immediately upon diagnosis, the period of convalescence would be much shortened. Here, often, the patient or the family is

as much at fault as the physician and surgeon.

E. J. HAY, M.D.

Rogers, N. M.

[There are two sides to this question of hospitalization. Conditions in the part of the country where Dr. Hay practices so effectively are quite different from those in the larger towns and cities. He is no doubt correct, regarding the circumstances he faces, where hospitalization would take the patient far from home and where living costs are relatively low.

But in the city, unless the patient needs a special nurse, in addition to the regular nursing service, the pay and keep of a trained nurse in the home would equal the hospital expense; and the hospital offers facilities not found in any private home.

The wholly untrained "practical" nurse may well be a source of danger, but there seems to be a definite place for women who have had enough training to co-operate intelligently with the physician, in handling the simpler cases which do not require the services of a registered nurse.—Ed.]

### Vaginitis Due to Vincent's Organisms (A Case Report)

THE patient, who was 17 years of age and single, gave as her complaints: vaginal discharge with itching and burning of the vulva, which had continued for three months. She had been receiving antigonorrheal treatment for three weeks, without noticeable improvement.

Examination revealed an abundant, yellowish, malodorous discharge; reddened introitus and vaginal walls; and an easy "two finger" vagina. The cervix was apparently normal and was filled with normal-looking mucus. A similarity of the odor present to that from the throat of one suffering from Vincent's angina was noted.

Smears were taken from the mouth of the urethra, the vulvo-vaginal glands, the vaginal walls and from the cervix. All except those from the cervix were positive for Vincent's organisms. The spirilla and the fusiform bacilli were present in large numbers. Diphtheria organisms were looked for, but were not found. Similar findings

were reported by the technician of the City Health Department.

Treatments were given daily. Each treatment consisted of cleansing the affected parts with a solution of neutral acriflavine, 1 to 1,000, followed by thorough drying. Then the parts were thoroughly swabbed with a preparation consisting of a 0.6 Gram ampule of nearsphenamine (D.R.L.), dissolved in 2 drams (8 cc.) of glycerin.

After receiving the fourth treatment the discharge had ceased, the patient was having no uncomfortable symptoms, and all smears were negative. The patient received two additional treatments. Three months have elapsed since last treatment and there has been no recurrence.

E. V. BENBOW, M.D.

Winston-Salem, N. C.

[This seems to be a decidedly unusual condition, but one which should be borne in mind when treating cases of vaginitis which do not respond to ordinary measures.

It also illustrates the importance of bacteriologic examinations of all pathologic discharges.—Ed.]

### What a Country Doctor Carries\*

AS A COUNTRY doctor, I shall append a list which I have found almost indispensable:

One flashlight, for auto repairs, throat examinations, and an occasional instrumental delivery.

Sterile cotton and gauze, needles and sutures (including a threaded obstetric tendon).

Adhesive, bandages and rubber gloves.

A small instrument case containing at least two hemostats, a pair of scissors, a probe, a combination male and female catheter (steel); a pickup forceps and a knife with renewable blades (Bard-Parker handle with two or three different blades).

A hypodermic syringe (Luer with two needles, long and short).

One rubber catheter (may be used in laryngeal obstruction from diphtheria or

foreign bodies; or a portion of rubber from stethoscope may be inserted in tracheotomy cases).

A stethoscope with no loose parts, and a blood pressure instrument in good condition.

A good speculum and tenaculum and a cervical dilator, with a dressing forceps thrown in with these.

Axis traction forceps (may be used for high, middle or low deliveries).

Anesthetics—a tube of ethyl chloride and a can of ether or chloroform.

One rectal instillation outfit for the magnesium sulphate-quinine-ether method of Gwathmey; many operations may be performed with this—curettement, forceps delivery, trachelorrhaphy, etc.

Drugs: a few—aromatic spirits of ammonia; an opiate for hypodermic use; 10,000 units diphtheria antitoxin (State Board, cost 25 cents); an ampule of LaPenta's hemostatic serum (P. D. & Co.) A bottle of suprarenal extract (preferably P. D. & Co.'s Adrenalin, which may be used locally, subcutaneously, or intravenously—or immediately after death into the heart itself. (No good in the few trials I have given it). A form of oral and intravenous digitalis (Digalen—Hoffman-LaRoche).

With these drugs and instruments a practitioner should be able to meet the usual emergencies of ordinary practice until he is able to secure more drugs or more professional help.

It has been my observation that the common run (or garden variety) of country doctors are adaptable and equipped naturally to meet the ordinary exigencies of general practice adequately. I have seen one take a dressing forceps, bend the end at a right angle and do a curettage. On another occasion, take a pair of scissors and a section of stethoscope and complete a tracheotomy, saving a neglected laryngeal diphtheria patient.

This equipment takes up very little room and may be carried by any practitioner in one case, any time, and anywhere.

J. F. NASH.

St. Pauls, N. C.

\*Reprinted from *Southern Med. and Surg.*, Mar., 1929.

# THE LEISURE HOUR

## The Clinical Expert\*

By ONE OF THE MANY

(Dialogue between a physician and a patient)

WELL?

Well, Professor, I am very ill!

What are your symptoms?

My dear Professor, I have gone through two years of suffering. . . . I have no longer any confidence in myself.

Who has seen you prior to myself?

Professor X. Are you acquainted with him? The one who, in the clinics. . . .

Pih!

Then Professor Y.

Pah! . . . And then, any one else?

Then Professor Z. . . .

Pooh! And what did they tell you?

My dear Professor, I believe they did not understand a blessed bit what is the matter with me.

I believe you. However, I should like to know what makes you infer this?

I infer it because all three of them, with one accord, came to the conclusion that all that is the matter with me is a slight chronic costiveness.

Ugh! Let's see. First of all tell me, what are your symptoms?

It's like this, Professor: Regularly, every morning, I awake with a sour, furred tongue. Then I eat a little, and the little that I do eat, you cannot imagine how heavy it lies on my stomach!

Ever had any venereal disease?

Never.

Your wife,—how is she?

Quite well, thank you. And how is your wife?

I was asking if your wife has any complaint.

What! She is so strong that she could knock a bull over!

Of course! Has she ever had a miscarriage?

Not a single one. My dear Professor, she has had thirteen children, one of whom is a cuirassier, another is an acrobat, and the youngest is so fat and big that he might very well take the place of the African elephant in the circus.

Do you ever feel dizzy?

Yes, Professor, sometimes I do.

That's it! Now, we've got at it! It is just what I thought! My dear fellow, you are a syphilitic.

You don't say so! I who went to the bridal bed as chaste as Susanna and as angelic as San Luigi—whose name be praised!

What about it? I am of the opinion that you have inherited the disease from your father.

My father! Why, he died at the age of ninety-three, and was still in such good health that he could crack nuts with his teeth, and other things without his teeth.

What are you talking about? Just tell me when it is that you feel dizzy.

Must I tell the truth? At the end of the month, when I have to pay the landlord his rent.

Perhaps you have pain in the night?

At night, I sleep like a top.

You mean that you fall into a hypochondriac stupor—into a kind of lethargy. Now tell me, do you sleep with your mouth open?

I never gave the matter a thought.

Hm! Unbutton yourself.

You see. . . .

Silence! Let me palpate you thoroughly. Your stomach is very dilated; and here we have it! . . . I have found it! That's where it is, in the fossa!

But . . . what have I inside me, in the name of goodness!

Quiet! Let me examine you thoroughly.

\*Translated from the Italian by H. J. Achard, M.D.

In the iliac fossa there is a gurgling . . . it is a meteorism . . . there are rumblings in the bowels.

I have all this the matter with me? And, confound it, no one noticed it!

It is not an easy thing, my dear fellow! It is only a clinical eye like mine that could find it out! And what treatment did my colleagues prescribe?

I'll tell you. Professor X prescribed a spoonful of iodized salts in the morning. . .

Iodized salts! Nothing more nor less than iodized salts! For Heaven's sake! They must have overlooked the fact that, in your condition, salts are contraindicated.

Ah! That's the reason why I felt worse!

Why, of course! In fact, when I touch you here, don't you feel severe pain?

None to speak of, Professor.

That can't be! You must feel the pain!

But don't I tell you I do not!

Bah! You must have your own way! And what did Professor Z prescribe?

Professor Z prescribed a purgative liquor.

Liquor! Liquor in your case! Either Professor Z knows or does not know that, if matters go a little farther, we shall have prohibition in Italy, the same as they have in America. I now understand why it is that your complaint has been troubling you so long. Listen! I'll tell you what! My colleagues, not knowing what to do in your case as regards diagnosis and prognosis of your disorder, have ruined you, and they have been equally unable to apply any treatment. The treatment that will cure you will be that which I prescribe for you, viz: Effervescent citrate, 15 Gm.; cream of tartar, 20 Gm., in one dose.

And now that we are talking about this point, I will tell you, without fear of contradiction, that the one who has understood your disorder is myself. You are not suffering from costiveness—and I will write it a dozen times on the card—you are suffering from another disease, fortunately not so serious as that which they diagnosed for you. You have a more noble complaint—more aristocratic, more difficult of pronouncement. . . .

And what is it?

I diagnose that you have a . . . ? ?

A coprostasis!

Ah! Thank God! At last I am saved!

Of course, you will do me one favor?

I should think so!

If you see my colleagues, you will not mention my diagnosis to them. You know why?

Why?

Because they might very probably, in their ignorance, try to persuade you that costiveness and coprostasis both mean the same thing.

### Lullaby Limited

*Doctor:* "I will give you a local anesthetic if you think it necessary."

*Railroad Man:* "Well, Doc, if it's going to hurt I reckon you'd better cut out the local and run me through on a sleeper."—*Pennsylvania Farmer.*

### Why a Horseshoe Keeps Away Bad Luck

Once upon a time, according to the Spanish, the devil started out on a mischief-making trip. He had a long way to travel and his feet got sore, so he stopped at a blacksmith's shop to get shod. The smith recognized the devil but dared not refuse to shoe him; however, he made the operation as painful as possible. He pared the devil's hoofs down, applied hot shoes, put on ill-fitting shoes, drove nails into the quick; and the devil went on his way. The shoes hurt him so badly that he soon stopped, pulled off the shoes and threw them away. Now, whenever the devil sees a horseshoe, he turns his back and goes away.—*Veterinary Snap Shots.*

### My Paw

My Paw sez, to be educated an' wise

Is fine fer ladies an' gents;

But he gits damn tired of some of these guys

That's got more education than sense.

—B. H.

# Thumbnail Therapeutics

## Heat and Cold in Inflammations

Hot, moist dressings are more effective in treating inflammatory conditions than dry heat. The best temperature is 104° F. The earlier the treatment is begun, the more satisfactory it is.

The influence of heat continues for hours and causes:

- 1.—A washing-out of the tissues, by increased blood and lymph circulation.
- 2.—Acceleration of resorption.
- 3.—Better cell nutrition.
- 4.—Reduction of infiltration.
- 5.—Decrease in the number and virulence of bacteria.

The influence of cold ceases as soon as the ice bag is removed, and its only effect is to retard the course of the inflammatory process for a time. It cannot be classed as a truly curative measure.—DR. SCHAEFFER, in "The Influence of Therapeutic Procedures Upon Inflammation."

## Incandescent Lamp as Source of Ultraviolet Radiation

From experiments made in the Rogers Laboratory of Physics, Massachusetts Institute of Technology, it would appear that any gas-filled incandescent lamp having a soda-lime glass bulb, a tungsten filament, and operated at about 30 percent higher than rated voltage will emit useful amounts of ultraviolet radiation of wave lengths longer than 290 millimicrons.—A. L. M. DINGEE, Cambridge, Mass., in *Phys. Therap.*, July, 1929.

## Cold Baths

The Vienna school, of Winternitz, has proven by tests on healthy human beings that cold baths of short duration, with friction or rubbing, produce an increase of from one million to one million and a half of red blood corpuscles, treble the white blood corpuscles and increase hemoglobin by 20 to 25 percent. Excessive cold produces local

anemia and, if prolonged, ischemia and death of tissue. Heat acts in a similar manner. Short applications of heat produce local increase in the constituents of the blood. Excessive heat is inhibitive and destructive. Prolonged cold or hot baths show opposite results from short, stimulating applications.—DR. WM. H. DIEFFENBACH, of New York, in *Phys. Therap.*, July, 1929.

## Rosacea

Telangiectatic blood vessels in rosacea may be destroyed by electro-coagulation with the Nagelschmidt cold cautery needles.—DR. ROBT. O. STEIN, in *Urol. and Cutan. Rev.*, March, 1928.

## Irradiation and the Blood

The enthusiasms that have been aroused by the demonstrable physiologic potency of irradiation with ultraviolet rays call for certain restraints before they are permitted to promote therapeutic procedures that may presently be discovered to be ill-advised.

Certain effects of excessive irradiation on the blood and circulation suggest caution and further investigation of the physiologic effects of irradiation.—Editorial, in *J.A.M.A.*, Oct. 6, 1928.

## Moles

Two cases of moles on the back of the neck were treated by desiccation with the Oudin (monopolar) current. No anesthetic was used and one application was sufficient.—DR. A. CALDER, Sydney, Nova Scotia, in *Canad. M.A.J.*, Sept., 1928.

## Warts

Eight cases of warts of various parts of the body were treated by desiccation with the Oudin current. One application was sufficient in all, and in only one case, of the venereal type, involving the entire corona, was it necessary to use a local

anesthetic. In our opinion it offers an easy and quick method of removing these annoying growths, far superior and safer than the old way with applications of caustics, such as nitric acid.—DR. A. CALDER, Sydney, Nova Scotia, in *Canad. M.A.J.*, Sept., 1928.

### Ultraviolet Rays in Skin Diseases

In herpes zoster a general, air-cooled ultraviolet ray treatment seems to be almost specific. Ultraviolet rays, in such dermatologic conditions as acne, and in certain forms of eczema, sycosis and tinea, frequently work brilliantly. In psoriasis the patches may disappear, but they are apt to recur.—DR. F. B. GRANGER, Boston, in *J.A.M.A.*, Oct. 8, 1927.

### Spasmodic Croup

The quickest, most positive and simplest of all remedies for the relief of spasmodic croup is a cold towel applied to the front of the neck.—G. J. WARNSHUIS, M.D., Milwaukee, Wis.

### Roentgen Ray Treatment of Angina Pectoris

In 56 cases of angina pectoris treated by the roentgen rays, reported in the literature, there was improvement in 87 percent. The duration of the improvement varies, but in many cases it lasts for at least two months following the cessation of the treatment. Complications following the treatment are exceptional.—DRS. C. LIAN and R. BARRIEU, in *L'Année Med. Prat.*, 1929.

### Electrocoagulation

Electrocoagulation far surpasses the cautery, and surgery as well, in the removal of cancer from any part of the body, save the hollow viscera and organs in the upper abdominal cavity. In cancer of the neck of the uterus, nothing can compare with this method in the results obtained and the rate of mortality, which should be nil following this type of work. Cancer on the surface of the body is best treated in this manner. If there is a chance for relief it is given to the patient when the temperature of the cells in the involved field is raised to many degrees above the normal, as heat is the only

agent known always to destroy cancer cells. DR. A. D. WILLMOTH, in *Hospital Progress*, Nov., 1928.

### Artificial Respiration in Electrocutation

The most important procedure for the resuscitation of persons apparently dead from electric shock, is artificial respiration, by the Schaefer method. This should be continued for 6 to 8 hours. Intramuscular injections of camphor, caffeine and lobeline, as well as stimulation of the skin and mucous membranes are also helpful, in some cases. DR. MOUZON, in *Presse Méd.*

### Physical Exercise in the Puerperium

Beginning the first day after a normal childbirth, the mother should occasionally raise herself from the prone to a sitting position; raise the extended legs; raise the pelvis from the bed; and separate and approximate the thighs, against resistance applied by the physician or nurse. These exercises favor involution of the uterus and improve appetite and sleep.—DR. KORJOVA, abstracted in *J.A.M.A.*

### X-Rays in Fungous Infections

Treatment of the dermatomycoses (ringworm, barber's itch, etc.) by means of x-rays was satisfactory in 8 out of 12 cases treated. A full epilation dose was given in treating the scalp and face (90 kilovolts; 5 milliamperes; 12 inch distance; no filter; 5 minutes exposure). In other cases the treatment was the same, except that the time was 3 minutes, repeated at intervals of 2 weeks.—DR. ORVILLE B. CHANDLER, in *Urol. and Cutan. Rev.*, Jan., 1928.

### Painful Shoulders

For the pain and limited movement of the shoulder joint due to so-called strains, sprains, synovitis and bursitis, the following physical therapy has been found efficacious: Patient in supine position; diathermy or other heat treatment for one-half hour; passive movements; galvanism or surging sine wave; radiant heat to relieve pain and congestion; either cabinet light bath with Scotch douche or ultraviolet radiation; active exercise. If this vigorous treatment does

not relieve, adhesions must be broken up under anesthesia.—DR. F. H. EWERHARDT, St. Louis, in *M.J. and Record*, Dec. 19, 1928.

### Radium in Chronic Metritis

One sterilizing dose of radium will cure about 95 percent of women approaching the menopause, who are suffering from chronic metritis.—*Radiological Review*, March, 1929.

### Radium in Nasal Polypsis

The use of radium, following the removal of nasal polypi, increases the percentage of cures and lengthens the intervals between recurrences.—*Radiological Review*, March, 1929.

### Posture and Expectoration

In the treatment of all kinds of cough associated with expectoration, it is an advantage to allow the patient to sit so as to fix the pelvis and to bend the spine and neck forward, so as to aid the depression of the ribs.—DR. WALL, in *Lancet*, Nov. 10, 1928.

### Eye Diseases in the Young and Ultraviolet Irradiation

With the exception of specific conditions, practically all the eye diseases in young people are due to tuberculosis, rickets or malnutrition, and the rationale of their treatment by ultraviolet irradiation is thus established.

The type of cases which respond well to general ultraviolet irradiations belong chiefly to the group of external ocular diseases and also affections of the ocular appendages; i.e., blepharitis, phlyctenular kerato-conjunctivitis and phlyctenular keratitis, corneal ulceration, non-specific keratitis and dacryocystitis; also tuberculous iritis.—DR. I. SPIRO, in *Eye, Ear, Nose and Throat Monthly*, Oct., 1928.

### Heliotherapy in Pulmonary Tuberculosis

Comparing the results in a series of pulmonary tuberculosis patients receiving a long course of heliotherapy, with a similar series of patients who did not, the consensus of opinion of the medical officers who used heliotherapy was that, when intelli-

gently used in fibrosing cases of pulmonary tuberculosis showing a tendency to improve, it hastened improvement. Heliotherapy is contraindicated in cases with caseous lesions which show no fibroses.—DR. A. T. COOPER, in *Am. Rev. Tuberc.*, July, 1928.

### Occupational Therapy

Occupational therapy should be as important in every hospital as the physical therapy and other departments. The work should be started in the ward by reading or by simple work of a diversional type. Later, the patient is taken to the shops and the work there is divided into 3 types, according to the case: (1) work with curative and vocational outlook; (2) curative or therapeutic only; (3) vocational only.

The greatest single danger in occupational therapy is fatigue, which should be avoided at all hazards.—DR. D. H. LEVINTHAL, in *Illinois M.J.*, April, 1929.

### New Colon Irrigator

Dr. Ed. Hollander, New York, has devised a new colon irrigator in which the flow of fluid to and from a colon tube is regulated without the use of shut-off clips, by means of a shuttle valve that fits against the anus and can be comfortably turned by a patient, unassisted.—*M. J. and Record*, N. Y., March 7, 1928.

### Ligation of Angular Vein in Carbuncle

The angular vein is a main channel by which infection passes into the venous system. Thrombophlebitis of the cavernous sinus is very frequently due to carbuncle of the upper lip, following an infection of the nasal tegument.

Ligature of the angular veins, under local anesthesia, is entirely free from danger. In 2 cases reported this prevented the spreading of infection from severe carbuncles of the upper lip.—DR. H. BAILEY, Birmingham, Eng., in *Surg. Gynec. Obst.*, April, 1928.

### High Blood Pressure

Cases of hypertension require rest and relaxation (by sedatives, if necessary) and direct or artificial sunlight.

Calcium salts, alone or with potassium, are helpful in many cases. (Sodium is

antagonistic to calcium. That may be why sodium chloride often seems harmful.)

Later, gradually increasing mental and physical exercise should be encouraged.—DR. NATHAN S. DAVIS, III, in *Illinois M. J.*, Jan., 1927.

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### Removal of Nevus Following Freezing with Ethyl Chloride

A nevus flammeus, the size of a silver dollar, was treated with ethyl chloride sprays. The surface of the nevus gradually appeared frozen. Treatment was repeated five times, with one day's interval between treatments. After 3 months there was not the slightest trace of any discoloration.—DR. K. KOSSACK, *Med. Klinik*, Dec. 30, 1927.

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### Heat and Cold in Pain

When local pain is the result of a toxin which is carried to the part from some further removed source, there are two plans of treatment; one is to deaden the receptivity of the nerve coming from the toxic area, and the other is to remove the toxin. For the first we apply ice, in the second we use heat.—DR. R. J. BEHAN, Pittsburgh, in *M. J. and Record*, March 6, 1929.

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### Ultraviolet Irradiation for Headaches

Ultraviolet irradiation will relieve toxic headache by increasing the calcium content

of the blood, thus raising the threshold entrance value against noxious stimuli. In headaches of a toxic origin there is usually a reduction of the calcium content of the blood.—DR. R. J. BEHAN, Pittsburgh, in *M. J. and Record*, March 6, 1929.

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### Ultraviolet Irradiation and Psoriasis

A considerable number of cases of psoriasis cleared up on ultraviolet treatment when other methods had either failed completely or given very short respite.

While some cases may clear up on a course of general irradiation from the carbon arc, others have to be given vigorous treatment from the air-cooled or water-cooled mercury-vapor apparatus. A combination of the different types may have to be employed.—DR. M. WEINBREN, in *Brit. J. Actinotherapy*, Feb., 1929.

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### Ozone

Ozone is valuable in the treatment of leg ulcers, in the treatment of suppurating wounds and in pneumonia. But the most dramatic results have been noted in depression after influenza.

Care should be taken that the ozonizer does not produce nitrous oxides as well as ozone, and it should be remembered that ozone is incompatible with most antiseptic solutions.—DR. H. MUNRO, in *Brit. J. Actinotherapy*, Feb., 1929.

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## ULTRAVIOLET IRRADIATION

Ultraviolet irradiation is an activator, but it cannot function unless the necessary materials, such as a suitable amount and form of calcium, as well as the hormones produced by the parathyroid, are present in the blood. To discover what foods and drugs should be administered along with ultraviolet irradiation will be the task of the biochemist.—Editorial, *Brit. J. Actinotherapy*, Feb., 1929.

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## MEDICAL ETIQUETTE

No profession is more exposed to the temptation to forget honor, humanity and kindness than is the medical profession; and there is none in which the exploitation of human suffering is easier. Yet there is none in which the temptation is more triumphantly withstood.

Let this be remembered by the public, when they feel inclined to sneer at medical etiquette, as if it were a code for maintaining selfishness and enrichment. Medical etiquette is the salvation of the patient.—JOHN ST. LOE TRACHEY.

# Current Medical Literature

## High-Frequency Currents and Tonsillitis

In *Eye, Ear, Nose and Throat Monthly*, July, 1929, Dr. John T. Scott, Dalhart, Texas, insists upon the superiority of the treatment of tonsillitis by the high-frequency, unipolar current, over surgery or electrocoagulation.

A diathermy machine capable of delivering 2000 milliamperes of current, an auto-condensation chair pad, a foot switch and an insulated, non-vacuum, metal-lined glass electrode are necessary. Place the patient on the chair pad and connect to a Tesla or Oudin terminal; set the current regulator and spark gap to deliver a one-fourth to one-half inch spark; use the foot switch for control; depress the tongue; grasp the throat electrode firmly and bring it within sparking distance of the tonsil.

The patient's body being charged, a spray of sparks will leap from the tonsil to the electrode and be grounded through the operator's body. The patient will have no sensation other than of comfortable warmth. The operator must not touch the patient while using this current, since any contact becomes a ground.

If the deeper tonsillar tissue is to be heated, apply the electrode in direct contact with the tonsil when it can be rapidly heated to any desired degree. This will ensure sterilization of the whole tonsil. The electrode may be held in contact with the tonsil for 15 to 30 seconds and this can be repeated at short intervals until six to ten applications are made.

The method is also applicable to the treatment of enlarged turbinates and drainage of the maxillary and frontal sinuses.

## Measuring Ultraviolet Ray Dosage

The term "erythema dose" is, for many reasons, unsatisfactory as a measure of ultraviolet ray dosage. In *Arch. Dermatol. and Syphilol.*, Mar., 1929, Dr. C. G. Lane and Ethel M. Rockwood describe tests with lithopone powder, closely following the method suggested by Dr. Janet Clark in 1924. This method is founded on the fact that a light-sensitive lithopone paint was darkened on exposure to ultraviolet rays, at a rate comparable to that of various physiologic reactions to these rays.

A small quantity of lithopone powder is placed upon a glass slide and a few drops of water added to make a paste. A piece of transparent quartz is pressed down upon the slide, which spreads the lithopone powder into an even layer. The two slides, held together by a rubber band, are exposed to the ultraviolet rays, the quartz facing the source. By various degrees of exposure definite gradations of gray color are obtained.

These gradations of shade are immediately compared with a standard, gray-colored paper, an index of values obtained by the comparisons, and a unit (lithopone unit) established. In this way the power of any lamp at any distance can be determined. The method also checks the efficiency of any lamp at various times.

The lithopone test is not ideal and there are still some drawbacks, but it is far more accurate and scientific than the older empiric "erythema dose" method of measuring ultraviolet ray strength.

## Treatment of Asthma by Radiation

In the *Brit. M. J.*, Jan. 5, 1929, Dr. S. G. Scott expresses the opinion that the important factors in the successful treatment of asthma by radiation are the use of a large field and small dosage.

Two Coolidge tubes, one focused on the back and the other on the front of the patient, so arranged that the rays cover the whole trunk, are energized by two separate installations, both tubes running at the same time. However, the results are equally good if each side of the body is treated separately. The anterior tube at 12 inches from the skin is centered over the epigastrium; the posterior tube covers a corresponding area.

High voltage therapy should not be used under any circumstances. The voltage should never exceed 150,000 volts and the results in some cases are better with lower voltage. Aluminum filters 3 to 4 mm. thick are used.

Some direct method of measuring dosage should always be used. The author uses an average dose for an adult equal to three-fourths of a double erythema dose to the skin, to the back and front of the patient. This, using a 25 cm. spark gap and 8 mm. through the tube, takes on the average 5 minutes. In severe cases of asthma this dose is given twice a week for 4 doses, then a rest for 2 weeks, then two doses laterally once a week.

The author reports good clinical results.

## Dental Caries, Vitamin D and Actinothrapy

My experience goes to show that an erythema dose of ultraviolet rays, administered to the skin of a considerable section of the body surface, not only encourages the healing of ulcers and wounds in the mouth but promotes the scavenging of the mouth through the agency of its salivary and mucous secretions and this will make for the defensive process known as arrested caries. Consequently, in a case of active caries of several teeth, it is not enough merely to fill the cavities and attempt to correct any obviously

harmful dietetic habits; one must try to raise the patient's resistance to caries by means of body baths of ultraviolet rays and, in many cases prescribe vitamin D (Viosterol) in the diet.

My experience confirms the opinion that irradiation reduces the acidity and the sensitivity of these cavities and improves the scavenging of the teeth, and by these means prevents extension and promotes repair of troublesome cervical caries.—F. TALBOT, L.R.C.P., in *Brit. J. Actinotherapy*, Nov., 1928.

### Physical Therapy in Chronic Arthritis

In *Arch. Phys. Therap.*, X-Ray, Radium, April, 1929, Drs. W. C. Stoner and L. S. Brookhart, of Cleveland, referring to 140 cases of chronic arthritis treated by them, remark that it must be admitted that physical therapy treatments such as baths, massage, ultraviolet rays and diathermy, were used with considerable disappointment in certain cases.

Diathermy, while it occasionally seems to have value, more often is disappointing and, in the more acute manifestations, seems to be contraindicated.

In the treatment of this group of 140 cases, an effort was made to improve the general health and to have the patient adjust his life to the demands of the disease. A relatively low carbohydrate diet was advised in most cases, with a low caloric intake in the obese. Rest, avoidance of exercise and encouragement of elimination was a routine in all cases. Drug therapy consisted of the salicylates, cinchophen, iodides, amiodoxyl benzoate and, in the obese with a low metabolic rate, thyroid extract was judiciously administered. Colonic irrigations were used as a routine. The results of treatment were as follows: Marked improvement in 19 (14 percent); definite improvement in 86 (61 percent); 11 (8 percent) were unimproved; and in 14 (10 percent) the results were questionable.

The conclusion is that physical therapy, in any or all forms, cannot be satisfactorily and effectively applied independent of general management as regards dietary, suitable drug therapy and colonic irrigations.

### Barbituric Hypnotics and Cocaine Intoxication

In *Illinois M. J.*, July, 1929, Dr. M. R. Guttman reports that, during the year ending April 1, 1926, in the clinic of Drs. J. C. Beck and H. L. Pollock, of Chicago, 416 ear, nose and throat operations were performed under local cocaine anesthesia. Of this number 78 (19 percent) showed signs of cocaine intoxication. During the last 3 months of this period an opportunity was given to observe the results of phenobarbital on 16 of the 78 patients showing evidence of poisoning. In these 16 cases the symptoms were relieved in every instance by the administration of the barbituric hypnotic.

During the following year, 391 similar operations were performed in the clinic under cocaine

anesthesia; but in this period, 3 grains (0.2 Gm.) of phenobarbital were substituted for morphine and atropine, thirty minutes before operation. In this series there were but two reactions from cocaine, one of which was not typical and was apparently due to hysteria. In the other case the phenobarbital was given too late, just as the patient was taken into the operating room.

In the year ending April 1, 1928, there was only one reaction in 312 operations under cocaine local anesthesia and it was found that, in this case, by an error, the previous administration of phenobarbital had been omitted.

The results show that, in a consecutive series of 703 cases of ear, nose and throat surgery, in which phenobarbital was correctly administered prior to cocaine anesthesia, there was no reaction from the cocaine.

In view of these observations, as well as of the animal experiments and the results obtained by other investigators, it is not unnatural to reach the conclusion that the barbituric hypnotics rank among our best possessions for the treatment and prophylaxis of cocaine intoxication.

As a prophylactic, 3 grains (0.2 Gm.) of soluble phenobarbital or 10 grains (0.65 Gm.) of barbital sodium may be used, 30 minutes before operation. If used hypodermically, the same dosages may be employed. This latter method is indicated in evident mild intoxications. In severe intoxications the same doses may be employed intravenously.

### Controlling the Destructive Action of the Roentgen Rays

Dr. Arch. P. Evans, of New York City, in *Arch. Phys. Therap.*, X-Ray, Radium, April, 1929, gives a very technical description of an experimental investigation to find means of controlling the effects of the roentgen rays upon living tissue, by means of neutralizing high-oscillating circuits.

Dr. Evans believes that both the therapeutic and destructive actions of the roentgen rays on living tissue are due to their capacity to liberate negative electrons (cathode particles) where their progress is stopped. If this is true, to prevent or minimize the destructive effects of the roentgen rays it is necessary to develop some means of restricting the activity of the released negative electrons or of overcoming or neutralizing the negative charge they carry. This has been the object of the experimental research.

For the neutralization, a special type of high-oscillating circuit was devised, the technical details of which are described in full.

From experiments on animals, it seemed to have been satisfactorily demonstrated that deep tissue dosage can be controlled, overdosage neutralized and x-ray sickness prevented. Even surface damage can be prevented or profoundly modified, but this needs many times the amount of neutralization energy that is required to prevent deep damage. The results obtained on experimental animals were verified by similar experiments made by the author by exposure of certain areas of his own body to the action of the rays.

The human body is made up of three kinds of

colloid systems, which differ in the electric charges carried by their colloid particles. These charges are positive, negative or neutral. The effect of the x-ray beam is to cause changes in the dispersion and size of the colloid particles. A continuation of the action ends in true ionic solution or lysis, and the defense of any colloid system against too great an increase or too great a diminution of its electric charge is hydration. The destructive effect of the roentgen rays is due to their tendency to cause colloid systems in the body to hydrate to the point of lysis. The action of the neutralizing oscillating electric circuit, as described by the author and to which the x-rayed patient is connected following radiation, is to maintain the normal colloid state of the tissues in the radiated areas. The high oscillating circuit itself has no apparent harmful effects on the tissues.

### Physical Therapy and Pyorrhea Alveolaris

In *Med. Herald*, May, 1929, Dr. Wm. A. Lurie, of New Orleans, mentions the treatment of pyorrhea alveolaris as one of the most important uses of diathermy.

Non-vital and infected teeth should first be removed; all circumscribed areas of infection should be opened and drained or, if necessary, removed. These steps will follow a thorough roentgenographic examination.

Diathermy to the mouth is given by means of a specially constructed electrode which is placed to the outer side of the gums and held in this position, avoiding contact with the teeth. The dispersing or inactive electrode is placed on the back of the neck. With the proper connections and with care, it is possible to raise the local temperature in the mouth from the normal to 110 degrees and to maintain it at this level for almost any length of time. The usual treatment is from 20 to 30 minutes.

The form of heat produced by diathermy has both a sterilizing effect on the infection and a stimulating effect on the local circulation. Pus and bleeding from the gums is lessened. Loose teeth tighten and alveolar defects heal. Cases treated in this manner show that teeth that were loose and condemned three years ago are still functioning and solid in the patient's jaws.

### The Saturation Method of Radiation Therapy in Malignant Disease

In *Illinois M.J.*, Mar., 1929, Dr. G. E. Pfahler, of Philadelphia, states that, in his opinion, the saturation method is the superior method of radiation therapy of malignant disease.

The saturation method depends upon a prolonged effect of the radiation upon the malignant growth, to the limit of tolerance of the surrounding normal tissue. The method combines and makes necessary the greatest amount of knowledge concerning malignant disease, and the principles of the distribution of the radiation.

If all the knowledge that is now available is utilized, we should cure practically all cancers of the skin (if treated while they are confined to the skin); 70 to 100 percent of cancers of the

breast (if operated upon while still confined to the breast) and 40 percent if the operation is combined with radiation, even after there are lymph nodes in the axilla; 50 to 75 percent of cancers of the mouth should be cured if treated early and thoroughly by gamma radiation; and 48 to 80 percent of cancers of the uterus should be cured if treated thoroughly and skilfully by radiation in the earliest stages.

### Electrosurgery

Dr. Howard A. Kelly, of Baltimore, in *Amer. J. Surg.*, May, 1929, forecasts that the younger, unbiased surgeons of today will in the future develop a refined and efficient surgical technic for electrosurgery which will astound the next generation and mark a new era.

In electrosurgery even extensive operations are often feasible under local anesthesia and there is scarcely a surgical lesion in any region that is not susceptible to it.

Dr. Kelly recapitulates the superior advantages of electrosurgery as follows:

- 1.—It destroys the tissues by a prompt necrobiosis in loco. In destroying, it sterilizes, rendering even seriously infected wounds innocuous.
- 2.—It greatly reduces hemorrhage.
- 3.—The tissues are not handled, squeezed, or compressed, but treated in situ and left to be thrown off or absorbed. There is no carbonization.
- 4.—The use of ligatures is largely avoided.
- 5.—The depth of the tissue from the surface, embarrassing to the general surgeon, is not a difficulty in electrosurgery.
- 6.—The field of operation is reduced in size and limited to the extent of the diseased or suspected area and does not in any way compromise the surrounding noninfected areas.
- 7.—The depth of the destruction, easily regulated to a millimeter or a fraction of a millimeter, can be extended at will, in marked contrast to the use of the Paquelin or the ordinary cautery.
- 8.—The number of complications is greatly reduced.
- 9.—There is, as a rule, no interference with primary union.
- 10.—There is less pain following the operation and less after-use of sedatives.
- 11.—Grafts take readily where large areas are left exposed to be epithelialized.
- 12.—A recurrence of malignancy in a limited area is easily treated at any convenient time in the convalescence.

### The Carbon Arc and Sunshine

In *J.A.M.A.*, June 1, 1929, Dr. W. W. Coblenz, of Washington, D. C., considers various sources of ultraviolet radiation. He states that the carbon arc is the hottest source of radiation readily obtainable, and in this respect it is the closest approach to sunlight. However, the radiation from the carbon arc is not like sunlight—far from it. There is a strong emission band in the violet, at about 389 millimicrons (the "cyanogen band"), and also beyond 4,000 millimicrons, in the infrared, there is a great amount of radiation not present in sunlight.

When a window of special glass (Corex D) is used, which shuts out the ultraviolet rays of wave lengths shorter than 290 and longer than 4,000 millimicrons, the spectral limits are similar to those of sunlight; but the intense cyanogen band remains.

Whether it is important to use a source of radiation having a spectral energy distribution similar to that of sunlight remains to be seen.

Except for the violet cyanogen band at 389 millimicrons, the electrodes of pure carbon are quite non-luminous. By using cored carbons filled with various substances, a highly luminous arc is produced.

The neutral, yellow, red and white flame carbon arcs vary in the intensity of their emission of ultraviolet radiations of the different wave lengths. None is an exact match for sunlight in spectral energy distribution.

### Radiotherapy in Suffocation Crises of Infants

In *Eye, Ear, Nose and Throat Monthly*, June, 1929, Drs. P. Duhem and Aidan, of Paris, France, discuss the problems of treatment of suffocation in infants, arising from laryngeal spasm due especially to hypertrophied thymus.

The authors point out that a diagnosis of thymus hypertrophy is not always certain, even from radiologic plates, and hesitancy should be the rule before performing a thymectomy. Radiotherapy is a no less reputable procedure and is less radical. The results obtainable with radiotherapy are immediate and decisive, the thymic cells being especially sensitive to the x-rays. In a follow-up of 18 patients, a complete cure was obtained in 12, 9 of whom were relieved from the first treatment.

Mediastinal tumors are also susceptible to the same treatment.

In a suffocation syndrome of the types named, in an infant, where the diagnosis of the underlying cause is certain or not, radiotherapy should always be practiced.

### Ultraviolet Therapy in Oto-Rhino-Laryngology

In *Eye, Ear, Nose and Throat Monthly*, June, 1929, Dr. A. J. Cemach, of Vienna, writes on the applications of ultraviolet therapy to ear, nose and throat diseases.

Dr. Cemach was one of the first to apply this therapy to tuberculous disease of the middle ear, using the quartz lamp, but he has since then considerably widened his armamentarium. In all cases he combines direct quartz light irradiation with systematic general treatment.

Cemach has treated 62 laryngeal tuberculosis patients by this method, obtaining about 60 per cent clinical cures of from 1 to 7 years duration. He prefers this to operative treatment of tuberculosis of the larynx. Tuberculosis of the pharynx and oral cavity is similarly treated.

In the nose, the most important indications for phototherapy are: Eczema, tuberculosis (lupus), hay-fever, and ozena. In hay-fever, Cemach obtains about 75 per cent complete cessation of all symptoms. He has found that hay asthma is

entirely uninfluenced by phototherapy. His experience in 47 cases of ozena was not entirely satisfactory; 16 cases of old-standing ozena may be considered as practically cured.

In the middle ear there is only one process that really responds reliably to light therapy, namely, middle ear tuberculosis. This disease, hitherto considered incurable, now shows 80 per cent of cures. Cemach has succeeded in curing 56 cases out of 64. It reacts to all forms of ultraviolet irradiation—sunlight, quartz light, or arc light—equally well.

### Rivière, Originator of Surgical Diathermy

Dr. A. Bern Hirsh, of New York, in an article in *M.J. and Record*, June 19, 1929, gives to Dr. A. J. Rivière, of Paris, the credit of being the originator of surgical diathermy, he having been the first to apply the high-frequency spark to surgical uses. Clinical evidence gradually accumulated in his practice so that he was able to present ample case reports to support his discovery at the First International Congress of Medical Electrolgy and Radiology at Paris, in 1900. Fulguration, desiccation and electrocoagulation are plainly described, even though stress was not laid, at the time, on these terms now fully recognized.

The refinements and special applications of Rivière's technic by Keating Hart, Nagelschmidt and others were later developments.

### Electric Treatment of Subdeltoid Bursitis

Dr. N. E. Titus, in *Am. J. Surg.*, March, 1929, states that the combination of general heat to the shoulder (as from an incandescent lamp), to increase the efficiency of the high-frequency current, which is next administered as "grounded autocondensation" and then followed by the application of the static current as effluve, can be relied upon to relieve all forms of subdeltoid bursitis, either acute or chronic.

Admitting that spontaneous absorption of calcification can take place, this method of treatment can also be relied upon to bring about an absorption of calcification in the region of the bursa.

These opinions are based upon an experience of over 150 cases.

### Cervical Lymphadenitis Treated by X-Rays

The literature of recent years shows that roentgen-ray therapy has been successful in a number of acute infectious conditions.

In *Am. J. Dis. Child.*, Mar., 1929, Dr. L. C. Rosenberg, of Newark, reports that this method of treatment gave good results in 80 children with acute cervical lymphadenitis secondary to infections of the upper respiratory tract; 68 of these children recovered without suppuration.

The condition is almost always one of prolonged duration; but roentgenization accelerates

the inflammatory process so that there is either rapid resolution or rapid breaking down. Following the exposure, there is relief of pain and discomfort and improvement in the constitutional symptoms.

Unfavorable effects do not result from irradiation.

If the adenitis proceeds to the stage where surgery is indicated, roentgen therapy cannot supplant it.

The average dose used in the author's cases was 20 percent of one skin unit dose on the surface; with the use of from 150 to 180 kilovolts; 0.5 mm. zinc or copper, plus 3 mm. aluminum filter; and a focal skin distance of 30 cm. This dose is equivalent to 260 international roentgen units.

### Henriques' Method of Reducing High Blood Pressure by Radium

In *Radiol. Rev.*, Mar., 1929, Dr. A. Henriques, of New Orleans, affirms that after five years experience with this method he is convinced that it should be tried in cases of hypertension.

The method consists of the application of 50 milligrams of radium to each side of the skull, at a point just in front of and a little above the external auditory meatus. The radium is filtered by 2 mm. of brass and is at a distance of one inch from the skin. At present, one hour's exposure, repeated weekly until the pressure falls to normal, is considered best. Attention should be given to general conditions.

Relief of high pressure as well as attendant conditions—headache, edema of the extremities, angina, auricular flutter, etc.—have been obtained in various cases. Diastolic pressure has been lowered 20 mm. in some cases. Several diagrams show reduction of the size of the heart following this treatment.

### Actinotherapy in Nervous Affections of the Skin

In the *Practitioner*, London, Mar., 1929, Dr. W. J. O'Donovan considers eczema, "stocking" erythema, varicose ulcers, acne rosacea and alopecia areata as skin affections having a nervous etiology.

In regard to eczema, if a multiple etiology is admitted, it is not right to consider that ultraviolet irradiation is always a very valuable treatment.

In "stocking" erythema light therapy is of service, but only from its general stimulating effects on the psyche.

The author states that varicose ulcers are never situated over areas where varices are largest. Such an ulcer may be considered a chronic dermatitis traumatica which, for treatment, needs two cooperating agencies: (1) A powerful tonic acting upon the patient's psyche; (2) a mechanical interposition protecting the ulcer. Local treatment by ultraviolet rays is unlikely to prove of value; the help that ultraviolet therapy certainly affords is based on its known benefits in other conditions where the tone of the higher nervous system is lowered.

In acne rosacea the role of light therapy must

also be for its general effect upon the patient and not essentially through local therapy. Similarly, a large body of patients suffering from relapsing alopecia areata will need ultraviolet therapy to the whole body for its tonic effects, rather than as a substitute for a rubefacient liniment.

### Arterial Hypertension and Physical Therapy

Dr. Jacob Gutman, of Brooklyn, in *Arch. Phys. Therap., X-Ray, Radium*, June, 1929, suggests that constipation and its resultant disturbances may be a cause of hypertension. Toxic substances pharmacologically active, as pressor or depressor, affect the blood.

Colonic irrigations should be administered in normal colons at least once a week and in abnormal colons more frequently.

Electric cabinet baths should be used, for the elimination of uric acid and other poisonous substances; massage and Bergonie treatment, to improve the circulation and reduce excessive weight. Special dietary measures must be observed, restricting quantity in obesity, carbohydrates in diabetics, salts and purin foods in nephritics. Rest, personal hygiene, restriction of physical and mental strain should be prescribed in all cases as part of the general treatment.

### Senile Ectropion Successfully Treated by Electro-Desiccation

In *Eye, Ear, Nose and Throat Monthly*, Feb., 1929, Dr. W. B. H. Waring, Cincinnati, reports a case of senile ectropion, which had been treated operatively without any favorable result, cured by the following method:

The hypertrophied conjunctiva was gradually brought under control with silver nitrate and copper sulphate applications; along with this were applied radiating touches of the electro-desiccating needle to the drooping conjunctival surfaces in a fairly systematic manner. The desiccation treatment was steadily continued at intervals and gradually decreased according as the lid resumed its normal position.

### Reticulo-Endothelial System and Diathermy

The cell complex, forming the so-called reticulo-endothelial system, is intimately associated with the defensible mechanism of the body. These cells may be modified to appear in any area where their defensive action is required. This defensive action is mainly based on the cellular faculty to embody, store and neutralize toxins, whether these are the products of bacterial invasions or originate in metabolic processes.

In *Arch. Phys. Therap., X-Ray, Radium*, March, 1929, Dr. Gustav Kolischer, of Chicago, asserts that in diathermy the local hyperemia and stimulation of lymph flow produced, change pathologic exudates into a condition that facilitates their absorption. At the same time the reticulo-endothelial cells are attracted to the area and absorb and destroy the toxin that causes in-

flammatory infiltration. Excessive heat, however, interferes with the vitality of the defensive cells, which explains why excessive heat not only fails of its purpose but may even cause an aggravation of the morbid condition.

The results of surgical diathermy and the electrocoagulation of malignant tumors are also based on the collaboration of the reticulo-endothelial cells. These cells not only destroy the malignant cells but are instrumental in the production of regulating ferments, checking reproduction of malignant cells.

### The Borosini Method of Colonic Lavage

The Borosini method of colonic lavage is much employed in continental Europe and is claimed to have many advantages. It is described by Dr. W. Kerr Russell, in *Brit. J. Actinotherapy*, Feb., 1929.

A rubber tube, attached to one end of a specially designed appliance, is introduced for a short distance into the rectum. The tube is fixed by tapes to the body and remains in position when evacuations occur. The patient lies on a comfortable couch, which may be placed over a sloppail or a water closet.

A container with a capacity of about 20 quarts is filled with a slightly hypotonic salt solution and is raised to a sufficient height (5 to 6 feet) to give the required pressure. The temperature of the contents is maintained by an electric light bulb for the 25 to 45 minutes required for the treatment. The outflow pipe of the container is connected with the rectal tube.

A broad canvas band, weighted at either end, is placed over the abdomen and prevents distension. It is customary for an evacuation to take place when half a pint of water has run into the bowel. It usually reaches the cecum in 20 to 30 minutes. During evacuation the flow of water into the colon ceases as the intracolonic pressure rises, but when evacuation ceases the water again flows automatically.

### Pyretic Treatment

Dr. C. E. Sundell, London, Eng., in *Brit. J. Actinotherapy*, Feb., 1929, insists on the value of pyretic treatment, especially in rheumatic states. By pyretic treatment is meant a general rise in the temperature of the body with a co-incident stimulation of the sweat glands. The rheumatic state is curable provided these conditions are maintained.

Treatment is given by means of any apparatus which surrounds the patient (except the head) with a warm, moist atmosphere; there must be no immersion of the patient in water or clouds of steam. The temperature of the air in which the patient lies should never be allowed to rise above 110°F., and it is better to restrict it to 105°.

As a general rule, the acidity of the sweat increases with the length of the bath and with repeated baths. A bath ordinarily lasts for from 20 to 30 minutes, during which time the temperature rises in a typical case from 97.6° to 101.8°F. and profuse sweating occurs. The patient then passes into a needle spray of hot to

tepid water or is sponged down, wrapped in dry towels and allowed to rest for half an hour.

Several cases of acute and chronic rheumatic states cured by this treatment are cited.

### Sunlight Through Ultraviolet-Transmitting Glass

In *J.A.M.A.*, June 22, 1929, Drs. G. W. Caldwell, and R. H. Dennett, of New York, report the results of some experiments to test the transmission of the ultraviolet rays of sunlight through Vitaglass. A solarium glazed with this glass was used and clinical tests were made on 35 children.

It was found that infants and children may be given sunbaths of two or three hours daily throughout the winter, not as a substitute for ultraviolet lamp irradiation in the cure of disease, but as a prophylactic measure.

There are ample ultraviolet rays in the antirachitic range in this latitude during the winter to be of definite value to those receiving them through this type of window glass, when exposures are made in the direct path of the sun's rays, since enough of these rays penetrate the glass to prevent rickets and spasmophilia in a normal, properly fed infant.

A general impression has gained credit that after the glass is aged there is no therapeutic effect. This is untrue, as shown by the authors' findings.

### Pylorospasm Treated by Roentgen Rays

In *Jahrb. f. Kinderh.*, Nov., 1928, Dr. C. Wiener states that he has found roentgen-ray therapy a valuable substitute for surgery in infantile pylorospasm.

The infant's body, except the pylorus region, is protected from the rays. The central rays are directed upon the pylorus as accurately as possible, with a 40 cm. focus skin distance. Usually 10 percent of the cutaneous-unit dose, under 3 or 4 mm. aluminum filtration, is given, which may be repeated at intervals of a week; however, one or two treatments were found sufficient to relieve the distressing symptoms. In the children treated there were no recurrences after leaving the hospital.

### Physical Therapy in Constipation

In *Phys. Therap.*, April, 1929, Dr. G. J. Ott, of Boston, gives the following technic for chronic constipation cases:

Use the mechanical vibrator over the visceral reflex center for three minutes. Then inject eight ounces of saline solution into the rectum, insert a curved sigmoid electrode, and apply a 5-inch by 8-inch, covered mesh electrode over the abdomen, covering the splanchnic reflexes, the descending colon and the sigmoid. Give treatment every two or three days for ten to twenty minutes, with the sinusoidal or Morse wave, using eleven interruptions per minute, synchronizing with normal peristalsis.

A good evacuation is usually the immediate result of this treatment. Following this, the oscillator may be used for 3 minutes over the

abdomen and the back. This gives a sense of well-being, stimulating the reflexes and promoting intestinal circulation. The Morton wave is then used either in the rectum or over the abdomen, or the static induced current, to comfortable tolerance, for 20 minutes over the abdomen and back.

### Diathermy in Urology

Dr. G. Kolischer, of Chicago, in *Illinois M.J.*, Feb., 1929, states that, in acute gonorrheal epididymitis and in acute prostatitis, medical diathermy will, in most instances, furnish subjective relief and in some cases produce acceleration of absorption.

In chronic prostatitis and vesiculitis, medical diathermy may be considered an indispensable part of our therapeutic efforts, but it would be erroneous to rely entirely on it. Prostate and vesicles have to be relieved of their accumulated contents by massage at regular intervals, and concomitant protein shock has to be used. Cardiac conditions will sometimes contraindicate the use of milk injections or vaccines and in such cases casein compounds or the patient's own blood are employed for intradermal or intramuscular injection, respectively.

### How Thermotherapy Acts

Dr. Paul Roth, in *Phys. Therapeutics*, Feb., 1929, states that the skin, together with the mucosa, is the "middleman" between the body's external environment and the blood and tissues, in the same sense that the lymph is the middleman between the blood and the living cell. It acts as a transformer, selector, and regulator of the energy transmitted to the body machine from its environment.

The mode of action of thermotherapeutic applications is intimately related to and dependent upon the complex functions of the skin and mucosa. Chiefly through the former, the activities of individual organs and functions of the body as a whole can be either excited or depressed.

The restoration as well as the preservation of health depends, in a degree not yet sufficiently appreciated, upon a healthy skin, well trained and daily drilled in all its functions. The proper use of artificial substitutes for the application of radiant heat and various types of light rays, diathermy, etc., are all valuable agents for the promotion and restoration of health.

### New (Uvag) Method of Treating Eczema

In *Brit. J. Actinotherapy*, Feb., 1929, Dr. K. Huldshinsky, of Berlin, describes what he calls the Uvag method of treating eczema. This is the painting of the affected surface with silver nitrate and then applying ultraviolet irradiation. Theoretically, there is:

1.—An immediate isolation of the silver from the solution and, by it, a thorough and complete tanning of the treated parts.

2.—An increase of the ultraviolet effect by conducting the rays to those cells which, bound to the silver, can withstand the strongest rays.

3.—Prevention of penetration of the rays to the deeper layers, thereby counteracting the danger of overirradiation.

The non-affected parts are first protected by ointment or towels. The affected part is wetted with a 5 percent solution of silver nitrate (2 to 3 percent in the case of infants). Immediately after, the part is irradiated by a quartz-mercury lamp at a distance of from 20 to 6 inches. After a while, blackening or browning of the wetted skin will be noticed. The desired reaction is completed in from 1 to 5 minutes.

Itching stops almost immediately after the first irradiation. Then the blackened parts begin to scale and peel off.

Between successive treatments the parts are left undressed and without any application. Sometimes the whole treatment is completed in 1 week; but sometimes several weeks' treatment is necessary.

### A New Preparation in Hydrotherapy

A combination of the salts of lithium, calcium, chlorine, iodine, bromine, strontium and radium, obtained from two natural springs, is being used as an adjunct to hydrotherapy in Germany and Switzerland. This liquid preparation is known as Transkutan.

The patient is placed in a warm bath, the temperature of which is raised to 106° to 108°F. A pint of Transkutan is then poured over the surface of the water. The patient remains in this bath for 8 to 10 minutes and is then put to bed in a hot pack for 2 hours. He is then rubbed down and kept in bed for 8 hours more. Profuse sweating and alleviation of pain are the chief results.—Dr. R. A. FEGAN, in *Brit. J. Actinotherapy*, Feb., 1929.

### Specificity of Ultraviolet

Under the heading, "The Light Which Shineth in Darkness," Dr. Herman Goodman, of New York City, in *Am. Med.*, June, 1929, writes on ultraviolet irradiation.

Dr. Goodman states that ultraviolet, while a general term, may be subdivided into specific rays of different intensities and frequencies which have distinct functions. For instance the ultraviolet rays which cause sunburn are probably different in frequency from those which cure rickets.

Again, the proponents of sunlight and its artificial imitators for ultraviolet application to growing children have sought the specific health rays in proper intensity based on nature's vital ultraviolet source, the sun. Those who seek sources of vital ultraviolet radiations of as great intensity as possible in the specific wave lengths or frequencies have sought for short applications for the factor of time.

There is a factor of threshold intensity which is difficult to convey but which is of great importance. Unless the intensity per unit of time is greater than a minimum (not as yet absolutely established), it is not possible to get measurable results of biologic experimentation no matter

how long the exposure may be. The atmosphere may have such weak intensity of specific vital ultraviolet radiation that the body is unable to respond, no matter how long the time factor may be stretched.

Dr. Goodman applies the term "Phototherapy" to the activating effect of ultraviolet irradiation on certain inert substances so that they, in turn, act upon the bodies of human beings and animals. The promise of the application of phototherapy generally seems to be very great, and here too the principle of specificity of different ultraviolet rays is applicable.

The idea of specificity of ultraviolet rays, as propounded by Dr. Goodman, deserves the widest acceptance, for it offers the best solution to the problem of the application of vital ultraviolet and best explains the measurable biologic reactions evinced by living human beings.

### Physical Therapy in Raynaud's Disease

Dr. Chas. R. Brooke, of Newark, N. J., in *Phys. Therap.*, April, 1929, expresses the opinion that the continued use of physical treatments, in cases of the mild and moderate types of Raynaud's disease, prevents the development of severe complications and sequelae with permanent chronic diseases of the blood vessels.

Diathermy has been used with notable success in a majority of the cases. The current strength should be of relatively low—not exceeding 1000 milliamperes—in the average case. The dose should be such as to give a mild treatment only.

The plate and partial cuff method has been found to be the most effective. The fingers and hand (or toes and foot) of the affected extremity are placed on a metal plate and a strip of metal, three inches wide and about six inches long, is placed over the shoulder and scapular region when the upper extremity is affected, and two-thirds around the upper thigh when the lower extremity is affected.

Diathermy should be followed by surface high-frequency treatment, applied with a nonvacuum electrode connected to the Oudin terminal of a high frequency machine, for 15 minutes, to the affected extremity.

When surgical measures are indicated in Raynaud's disease, they should precede the use of physical measures.

### The Static Current

Dr. W. Benham Snow, New York City, in *Med. Herald*, April, 1929, defines the static discharge as a constant current of high voltage and low amperage, possessing the qualities peculiar to the constant or direct currents and acting characteristically upon individual cells, independent of the neuromuscular mechanisms.

In the therapeutics of inflammation, the effects of the static current are peculiarly adapted to the removal of local stasis or infiltration by the successive contractions induced in the cells independently, thus expressing from the lymph spaces accumulated exudations, with restoration of circulation and repair. There is no measure known in medical science that is so potent as

the static current for the removal of exudations and infiltrations.

The effects of this current upon metabolism are remarkable, as shown by the improvement in general health.

No current can replace the static current in therapeutics.

### Hydrotherapy in Pneumonia

True bronchopneumonia, lobar pneumonia and influenza pneumonia are treated strictly according to the disease picture presented by the patient.

In cases of hyperpyrexia, the hydrotherapist does not attempt to suppress the fever, but by means of sectional ablutions reduces the toxemia and notes the subsequent favorable changes in temperature. These sectional ablutions or spongings consist in bathing the body in sections, starting at one upper extremity and proceeding to the lower and to both aspects of the thorax, abdomen and back. This ablation or sponging is given 3 times at one session, with water at 120° to 130°F. with gentle friction, and upon completion a brisk, cold ablation is given the whole body after which the patient is dried, covered and left to rest.

These sectional ablutions are carefully prescribed by the physician who notes the reaction of the patient and orders repetition from three to eight times a day, depending upon his findings. —DR. W. H. DIEFFENBACH, in *Phys. Therapeutics*, Feb., 1929.

### Radiation in Uterine Hemorrhage

The most important and practically the only indication for radiation therapy in benign diseases of the uterus is hemorrhage.

In Illinois M.J., March, 1929, Dr. Henry Schmitz, of Chicago, presents a study of 802 cases of uterine hemorrhage, observed among 2,117 gynecologic hospital cases. Of these 335 (41.98 percent) were hypermenorrheal; 97 (11.66 percent) were polymenorrheal; 370 (31.70 percent) were metrorrhagies, 253 of these cases being cancer of the uterus.

The total number of cases in which medical, surgical or radiation treatment would be applicable was 225. The contraindications to radiation therapy are: co-existing pelvic infections, desire for offspring, age (36 years or younger) and neuropathic tendencies, either personal or familial.

If medical treatment failed, then surgery—dilatation and curettage—was employed. If this failed, radiations were employed.

Medical treatment was curative in 59 cases (26.22 percent); surgical treatment was curative in 105 cases (46.67 percent); radiations were indicated in 61 cases (27.11 percent).

All uterine bleeding should be viewed with grave suspicion until it has been proved to result from benign diseases. If the introduction of the uterine sound into the uterine cavity causes a thin stream of blood to escape into the vagina, and if the trickling of blood continues for some time, this observation may be regarded as highly suspicious of malignant disease. If an ulcer or erosion on the vaginal portion of the cervix is

touched with a cotton applicator and free arterial bleeding ensues, then the ulcer is probably malignant. Such cases should be subjected at once to diagnostic excision so as to rule out or confirm cancer.

### Physical Therapy in Glaucoma

Most glaucomatous patients fear surgery and avoid it until vision is practically lost. With such patients much can be gained by physical therapy. In *Arch. Phys. Therap.*, X-Ray, Radium, May, 1929, Dr. C. B. Sputh, of Indianapolis, reports that he is using, as the principal treatment for early glaucoma, physical therapy, combined with the regular routine treatment. In advanced cases surgery is recommended, followed by physical therapy. When the intraocular pressure exceeds 50, surgery is recommended.

The routine office practice, following preliminary eye instillations, is as follows:

- 1.—Inspect the eye;
- 2.—Take the ocular tension with the McLean tonometer;
- 3.—Use Tesla high-frequency current, with a vacuum eye electrode, beginning with 10 minutes and increasing to 20;
- 4.—Give treatments at first daily, then three times a week.

This treatment relieves pain, lowers intraocular tension, relieves congestion and clears the cornea.

The electrode is not held snugly against the eyeball; a kind of vibratory massage effect is aimed at.

### Therapeutic Possibilities of Color

The importance of color in our scheme of things looms larger and larger. In *Medical Economics* for July, 1929, Floyd W. Parsons considers the therapeutic possibilities of color.

The science of color is now being given closer attention than ever before. In addition to its use in the arts of illumination and decoration, color is being applied to the treatment of human disease. Respiration is affected by color. The sedative colors induce deeper respiration; they soothe and calm us. The recuperative colors induce a more superficial or more even respiration; they equalize and refresh us. The stimulant colors excite a more rapid respiration; they quicken our activities. One authority on color reactions has classified these effects as follows:

#### THE PHYSICAL

Sedative—Lead-Gray, Moss Green.  
 Recuperative—Golden-Brown, Turquoise.  
 Stimulant—Vermilion, Orange-Red.

#### THE MENTAL

Sedative—Olive-Green, Prune.  
 Recuperative—Fawn, Emerald-Green.  
 Stimulant—Chrome, Rose-Madder.

#### THE NERVOUS

Sedative—Moonlight-Blue, Moss-Green.  
 Recuperative—Citron, Mauve.  
 Stimulant—Orange, Flame-Rose.

In appraising the various color factors, we must distinguish between the novelty of a short exposure and the monotony of a long one. It

is pleasant to hear a brass band occasionally, but living with one for hours each day would not bring happiness. A garden of red roses is most pleasing, but no one would care to live constantly in any such atmosphere of pure color.

Experiments have shown clearly a great difference between colored lights and colored walls. When a room with green walls is illuminated by ordinary light the result is quite different from that of a white or gray room illuminated by green light. In the latter case the face of another person appears unnatural and the result is very unsatisfactory. This emphasizes the power of colored light to alter the appearance of things. It also shows that when the chief aim is to secure definite and decided effects, colored light is far superior to mere decorative schemes.

### Physical Therapy in Renal Tuberculosis

Although the treatment of renal tuberculosis is admittedly surgical, some cases have been reported as cured by non-surgical methods.

In *Bull. Battle Creek Sanitarium*, April, 1929, Dr. W. F. Martin, discusses the physical therapy treatment of cases of bilateral or unilateral infection where operation is denied; also the post-operative treatment of nephrectomized patients whose tuberculosis is not completely cured.

The physical measures considered are diet, heliotherapy, diathermy, hydrotherapy, local (irrigation) treatment and rest.

In diet the cardinal principles are: (1) a well balanced ration, giving minimum elimination by the kidney; (2) a supply of food rich in calcium and iron salts; (3) furnishing sufficient bulk to avoid intestinal stasis.

For the first condition a high protein diet should be avoided.

Diathermy is of great value in relieving pain in renal tuberculosis. The author uses a 6-inch electrode placed posteriorly over the kidney, with an 8-inch one anteriorly. Beginning with 500 milliamperes, the current is gradually increased to 1000, for from ten to thirty minutes at a time. A similar application, focused on the bladder, is effective in relieving vesical pain.

The other physical measures call for no special comment.

The author is enthusiastic about his results since adopting this procedure, especially on account of the relief of pain it brings to these afflicted patients. The nephrectomized patients, after dismissal from hospital, particularly need such attention.

### Rheumatic Carditis Treated by X-Rays

In rheumatic affections, the chief complication is involvement of the heart.

In *Am. Heart J.*, Dec., 1928, Drs. R. L. Levy and R. Golden report their findings in 249 cases of rheumatic heart disease treated by roentgen rays applied over the cardiac area, so that about 10 percent of the erythema dose was distributed throughout the heart muscle.

Twenty-one (21) cases showed clinical improvement at the end of the follow-up period.

In 17 there was a change in the electrocardiogram, due probably to the effect of the rays on the myocardium. In 5 of 7 cases with paroxysms of severe heart pain, relief from this symptom followed roentgenotherapy.

In no instance was there evidence of injury to the heart or of an unfavorable effect on the course of the disease, but in 14 cases there were some unpleasant reactive symptoms.

Early cases, in the first attack of rheumatic fever, offer the best chance for success in roentgenotherapy.

### Physical Therapy for Colitis

In *Phys. Therap.*, May, 1929, Dr. L. H. Levy, of New York, reports that he has employed physical therapy in over 600 cases of colitis. At first he used it only in those cases that would not respond to medication and diet alone; now he uses it for every case for the reason that even those cases entirely amenable to diet and medication respond much more quickly and the results are of more lasting duration when physical therapy is used in conjunction.

The basic treatment is ultraviolet radiation and to this is added infrared radiation. When infection is present, local measures must be employed.

The abdominal surface is first exposed for one half-hour to the infrared lamp. This is followed by increasing dosage, front and back, with ultraviolet radiation, using the mercury vapor lamp. At the beginning the carbon lamp is also utilized, with an exposure of 30 minutes duration to the abdomen only. The exposures are reduced in duration as the time of exposure to the mercury vapor lamp is increased up to 15 minutes duration front and back. Three treatments a week are given; 30 treatments are given as a minimum.

The results obtained in 600 cases have been very satisfactory. Most patients were symptom-free at termination of the treatment.

### Electrothermic Methods in Dentistry

C. E. Norris, D.D.S., of Indianapolis, in *Arch. Phys. Therap.*, X-Ray, Radium, May, 1929, states that electrothermic methods—medical and surgical diathermy—are of value in selected cases of neoplasms and of chronic infectious lesions of the mouth. It is very important that the operator should acquire considerable skill in the use of surgical destructive diathermy before applying it within the oral cavity. In the average case it is better to use too little than too much current.

### Diagnostic Errors and the Poor Results of Physical Therapy

In *Arch. Phys. Therap.*, X-Ray, Radium, Apr., 1929, Dr. Julius Brams suggests that the doubtful attitude which the medical profession in general has taken toward the efficacy of physical therapeutic measures is the result of many factors. The two most important ones are loose legislation, which permits any layman to own and operate electrotherapeutic apparatus, and the

widespread, unscientific use and abuse of the apparatus by the regular physician.

In regard to this latter point, a series of cases is cited to demonstrate that the treatment of certain conditions without an accurate diagnosis first being made, the treatment of symptoms without any effort to make a clinical diagnosis to explain these symptoms and the prescription of treatments by a technician or nurse, etc., all warrant the criticism made.

More careful diagnosis and a critical selection of cases for treatment is suggested, in order that the poor results after treatment with physical therapy should be kept down to a minimum.

### Physical Therapy in Chronic Rheumatism

In *Brit. Med. J.*, Feb. 23, 1929, Dr. F. D. Howitt gives the physical therapy indications in chronic rheumatism as: (1) the use of heat combined with massage and manipulation; (2) stimulation of the skin; (3) elimination of waste products.

Heat is commonly applied by conduction but, as it does not penetrate to any appreciable extent, its use should be confined to the treatment of inflammatory conditions of the skin and immediately subjacent tissue.

Heat can be applied by radiation, especially the long wave lengths of the red end of the spectrum. This method of applying heat is better than conduction.

Diathermy is used when it is required to concentrate heat in deeply situated tissues. The value of electrical currents other than diathermy in the local treatment of chronic rheumatism is doubtful.

### Report of Committee on Static Electricity

The report of Dr. Wm. Benham Snow, as Chairman of the Committee on Static Electricity of the Western Association of Physical Therapy, is published in *Med. Herald*, July, 1929, and the following conclusions are drawn:

1.—The static agencies are of the constant current of high voltage and low amperage and possess qualities peculiar to the constant or direct currents, acting characteristically upon individual cells, independent of the neuromuscular mechanism.

2.—In the therapeutics of inflammation, the effects are peculiarly adapted to the removal of local stasis or infiltration, by the successive contractions induced in the cells independently, thus expressing from the lymph spaces accumulated exudations, with restoration of circulation and repair.

3.—Its effects upon metabolism are remarkable, as shown by the improvement in general health of patients so treated and also by Steele's classical demonstrations.

4.—For the peculiar effects referred to, there is no current that can replace the static current in therapeutics, in which it fills a remarkable field.

# NEW BOOKS

## Turrell: Electrotherapy

THE PRINCIPLES OF ELECTROTHERAPY AND THEIR PRACTICAL APPLICATION. By W. J. Turrell, M.A., D.M., B.Ch. (Oxon.), D.M.R. & E. (Cantab.), Consulting Physician, Oxford County and City Mental Hospital; Physician in charge of the Physiotherapy Department Radcliffe Infirmary, Oxford; etc. Second Edition. London and New York: Humphrey Milford, Oxford University Press. 1929. Price \$4.75.

This work is an attempt to explain the therapeutic action of electricity upon rational grounds and physiologic principles. The following hypothesis is stressed: That the underlying factor governing the physiologic action of current electricity is the relatively high velocity of the hydrogen and hydroxyl ions and the consequent concentration of these ions at the make and break, or sudden variation in the strength of the electric current. Thus, in the case for instance of apparent death from electric shock, it is the hydrogen ion concentration at make and the hydroxyl concentration at break that stimulate the inhibitory action of the vagus and so induce apparent death.

The book is divided into six parts: Part I summarizes the history of electrotherapy; Part II deals with the therapeutic action of current electricity, including constant and interrupted currents; Part III covers the therapeutic action of radiant energy; Part IV, electropathology; and Part V, electro-diagnosis.

Part VI is devoted to practical therapeutics, and comprises the application and mode of action of electricity in various forms to the diseases of the body, in a systemic arrangement.

The book is well and clearly written. It is one that will appeal to the practitioner who desires to use electricity in his practice and wishes to have the rational basis upon which it should be employed and to know its limitations and the best and most suitable methods of applying it.

## Jacobson: Progressive Relaxation

PROGRESSIVE RELAXATION. A Physiological and Clinical Investigation of Muscular States and Their Significance in Psychology and Medical Practice. By Edmund Jacobson, A.M., Ph.D., M.D., The Physiological Laboratory, The University of Chicago. Chicago, Ill.: The University of Chicago Press. 1929. Price \$5.00.

This book is a plea for a better understanding by the profession of what is meant by true physiologic rest, for its necessity as a therapeutic measure, and for a realization of the measures necessary to secure it.

There is a nervous element in a large variety of diseases. There is lacking in medical prac-

tice, however, a method of approach to problems of fatigue, debility and lowered resistance, in patients who are not properly neurotic, but whose energy output might be economized in the interests of their health.

The author calls attention to these problems and describes a method of progressive muscular relaxation, with the cooperation of the patient, that should interest neurologists and other practitioners.

Rest is often nature's remedy, but the ordinary method of enjoining rest by directing patients to lie in bed does not secure complete physiologic rest. Complete relaxation is only compatible with absence of emotionality.

The method of obtaining neuromuscular relaxation described by the author is the result of many years of study by him and others. It opens up a new field of therapeutic endeavor, or rather it replows an old field.

Although most practitioners would entirely agree with the author that the method of progressive neuromuscular relaxation recommended would, if persevered in and sufficient time were available, bring about excellent results in the types of cases indicated, yet it is questionable if many will agree that the time and effort needed would be balanced by such results, as, apart from other considerations, there is no guarantee that the results would be durable. Some might say in fact: *Le jeu ne vaut pas la chandelle!*

## Humphris: Phototherapy

ARTIFICIAL SUNLIGHT AND ITS THERAPEUTIC USES. By Francis Howard Humphris, M.D. (Brux.), F.R.C.P. (Edin.) M.R.C.P. (Eng.), L.R.C.P. (Lond.), L.M. (Rot., Dublin), D.M.R. & E. (Cantab.), Hon. Consulting X-Ray Physician to the American Hospital in London; etc. Fifth Edition. London and New York: Humphrey Milford, Oxford University Press. 1929. Price \$5.25.

As a popular general handbook on artificial sunlight and its therapeutic uses, this must have reached its mark, as it is now in its fifth edition since its first issue in 1924.

There is a good historical introduction, from which it appears that sunlight therapy was well known to the old Egyptians and Greeks, and that the Roman, Pliny the elder, wrote: "*Sol maximum remedium est*," while Celsus, Galen and other early physicians also advocated heliotherapy.

The chapter on facts and fallacies regarding the ultraviolet rays is interesting. Among other things the author points out that the term ultraviolet is very often misapplied; that there is no such thing as an ultraviolet ray "burn"; and that speaking of these rays as "chemical rays" is not strictly correct.

Regarding the therapeutic value of ultraviolet irradiation, particular stress is laid on the blood changes which it causes, such as increase of calcium, phosphorus, iron, iodine, blood platelets, bactericidal properties of the blood and an increase in the number of the blood cells themselves. The author considers that the increased phosphorus and calcium metabolism and the greater absorption of these substances from the bowel are mainly responsible for the good effects produced in rickets.

The chapters on apparatus and technic will not add materially to what is well known already in American practice; but the practical applications of ultraviolet irradiation probably exceed American practice. It is questionable if many of our practitioners would agree to its advisability in cases of enlarged prostate or in the neurasthenias, or, even with the restrictions mentioned, in cases of pulmonary tuberculosis. However, this therapy is new and the future may show a wider proved field.

The author thinks that ultraviolet therapy is particularly valuable as a prophylactic measure and for restoring ordinary lost energy. It should not be reserved for the sick alone.

There is also a good chapter on the use of the infrared rays.

### Neuropsychiatry

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. Volume X, *Neuropsychiatry*. In the *United States*, by Col. Pearce Bailey, M.C., Lieut. Col. Frankwood E. Williams, M.C., Sergt. Paul O. Komora, M.D. In the *American Expeditionary Forces*, by Col. Thomas W. Salmon, M.C., Sergt. Norman Fenton, M.D. Prepared Under the Direction of Maj. Gen. M. W. Ireland, The Surgeon General. Washington: Superintendent of Documents, U. S. Government Printing Office. 1929. Price \$2.25.

Volume X (*Neuropsychiatry*) of the reports of the Medical Department of the United States Army in the World War is particularly interesting and of value because it is the first systematic presentation of the functional neuroses and psychic disturbances peculiar to modern warfare. It has been known for a long time that not only in actual war, but also in peace time, there is a higher incidence of mental disease among soldiers than in civil life, but the peculiar conditions generally conglomered under the term "shell shock" (but which were not always actually due to this specific cause) might be said to have become an entity during the World War, and its study becomes important because, in future wars (should there be any), the loss of man-power from this condition must be looked upon with serious concern.

The present volume consists of two parts: In Part I, neuropsychiatry as observed in the United States is dealt with; Part II deals with the same conditions, as observed in the American Expeditionary Forces.

The statistical parts of the volume are valuable, inasmuch as they are compiled from accurately prepared official reports. These also supply data upon which it will, in future, be possible to prepare criteria for the examination of recruits

and for the rejection of those with stigmata which make them peculiarly sensitive to the disturbances of the nervous and psychic apparatus peculiar to army life and warfare.

Not the least valuable parts of the volume are those which deal with the treatment of functional neuroses and psychoses and the results of such treatments observed over sufficiently long periods.

### Stokes: Syphilis

MODERN CLINICAL SYPHILOLOGY. *Diagnosis—Treatment—Case Studies*. By John H. Stokes, M.D., Professor of Dermatology and Syphilology in the School of Medicine, University of Pennsylvania; etc. With the Co-operation of Paul A. O'Leary, M.D., and William H. Goeckermann, M.D., Section on Dermatology and Syphilology, The Mayo Clinic; and Loren W. Shaffer, M.D., and Cleveland J. White, M.D., Department of Dermatology and Syphilology, School of Medicine, University of Pennsylvania. Illustrated. Philadelphia and London: W. B. Saunders Company. 1926. Price. \$12.00.

A comparison of Professor Stokes' textbook on modern clinical syphilology with that of Fournier will bring to mind the extraordinary changes in our clinical conceptions of the disease within a quarter of a century. It is not too much to say that, despite all the clinical knowledge of the past, our conceptions today are entirely and radically different from those of that period. Within about twenty-five years we have had Schaudinn and Hoffman's identification of the organism causative of syphilis; the remarkable experimental reproduction of syphilis by Noguchi; the development of the Wassermann reaction; the chemotherapy of syphilis, especially by the arsphenamines, and a clearer idea of the ramifications of nerve syphilis, to say nothing of a host of minor matters in which syphilis, under some type of manifestation, plays an important part.

It is, therefore, easy to see that a clinical textbook on syphilology written today can have practically little or nothing in common with similar textbooks of the past and, for all intents and purposes, Professor Stokes' work is entirely original and based on his extensive clinical experience under the newer aspects of syphilis.

There are 23 chapters. These include the methods of history taking and fundamental diagnostic tests, the technics of which are described in detail; the modern methods of treatment by mercury, bismuth, iodides and especially the arsphenamines, including again all the refinements of injection technic as followed in the best clinical practice; reactions, complications and contraindications; early secondary and late syphilis, as seen from the clinical standpoints; syphilis of various regions and organs; and familial and prenatal syphilis.

Haphazard measures in the recognition and treatment of syphilis are not tolerated today. The general practitioner must make himself at least fairly well acquainted with the practical aspects of this disease, both as regards diagnosis and therapy. A book such as the one before us, which lays bare all the clinical minutiae of this

type of practice, is more or less a necessity for every practitioner. Although here and there, in literature and in other textbooks, there are excellent clinical descriptions covering certain aspects of diagnosis and treatment, no where else have we seen so complete a work as this, and the fact that it comes from the pen of such an acknowledged authority as Professor Stokes gives it a particular significance and assured position.

### Heberden's "Introduction to the Study of Physic"

AN INTRODUCTION TO THE STUDY OF PHYSIC. (Now for the First Time Published) By William Heberden (1710-1801). A Prefatory Essay by Leroy Crummer. With a Reprint of Heberden's "Some Account of a Disorder of the Breast." Portrait in Photogravure. Six Illustrations. New York: Paul B. Hoeber, Inc. 1929. Price \$2.00.

This little volume will appeal primarily to the book-lover and secondarily to those to whom the pursuit of the history of medicine, in by-paths, gives keen pleasure.

Wm. Heberden, an English medical worthy contemporary with Jenner and the Hunters, has left his mark on medical literature. The manuscript of his previously unknown essay, "An Introduction of the Study of Physic," was an accidental "find" of Dr. L. Crummer who has now published it, with a prefatory essay, for the first time. Heberden's essay on a disorder of the breast (in which he was the first to describe angina pectoris) is also reprinted.

To the literary-minded physician, such books are always a joy—something to turn to when the more commonplace and often sordid facts of daily life tend to make the spirit weary. The paper and typography leave nothing to be desired.

### Tubby: Survival of Consciousness

JAMES H. HYSLOP-X. His Book. A Cross References Record. Collated and Annotated by Gertrude Ogden Tubby, B.S., Formerly Secretary of the American Society for Psychical Research. With a Preface by Weston D. Bayley, M.D. York, Pa.: The York Printing Company. 1929.

That individual human consciousness survives the transition known as death is now fully recognized by many, but there is, of course, a much greater number of unconvinced persons.

Among the truly scientific students of psychic phenomena, Dr. James H. Hyslop was an outstanding figure, and when his physical life ended, in 1920, it was to be expected that, if it were possible to establish the fact that his identity continued to exist, he would do so. That he has made this demonstration is fully accepted by those who are in the best position to judge, and this volume contains, in full detail, a part of the evidence upon which this conviction is based.

There is an interesting and well written preface, by Weston D. Bayley, M.D., and a foreword and introduction, by the author, explaining how the material was collected and cross-indexed.

The bulk of the book consists of verbatim reports of seances with psychics in America and Europe, including trance communications and

automatic writings, and of comments upon these. All data are given, according to accepted scientific methods, so that any student can go over the source-materials and draw his own conclusions. When the same details were communicated by more than one psychic, these points are coordinated by cross-references. Records of 29 seances are thus reported, and a few pages at the end are devoted to a summary of the evidence presented.

This is a reference work of real and permanent value to all who are interested in the study of psychic phenomena, and some such work should be carefully read by every thinking man before he presumes to declare, out of the abundance of his ignorance, that post-mortem consciousness and activity are chimerical.

### Ker-Rundle: Infectious Diseases

KER'S INFECTIOUS DISEASES. A Practical Textbook. Revised by Claude Rundle, O.B.E., M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H., Medical Superintendent, City Hospitals and Sanatorium, Fazakerly, Liverpool, and Lecturer on Infectious Diseases to the University of Liverpool. Third Edition. London and New York: Humphrey Milford, Oxford University Press. 1929. Price \$10.50.

Dr. Ker's practical textbook on the infectious diseases has been before the public since its first edition more than twenty years ago, and has earned a reputation for its excellent clinical descriptions. The present (third) edition reviews the progress made in knowledge during the past nine years and such additions, corrections and omissions as are necessary have been made. The new matter includes especially the more recent practical applications of immunology in scarlet fever, diphtheria, measles, etc.

The volume is handy and gives a clear presentation of the subjects treated. Thirteen of the fifteen chapters are devoted to clinical descriptions of the commoner infectious diseases. There is, however, as far as can be judged, little that is new to the American reader. In fact, nearly all progress in the knowledge of infectious diseases and their therapeutics, for the past decade and more, has originated in the United States and is embodied in American textbooks.

In order, probably, to keep the size of the book down, the type has been set rather too closely for easy reading.

### Forrester-Brown: Deformities in Infancy

DIAGNOSIS AND TREATMENT OF DEFORMITIES IN INFANCY AND EARLY CHILDHOOD. By M. F. Forrester-Brown, M.S., M.D. (Lond.), Surgeon, Bath, Somerset and Wilts Central Children's Orthopaedic Hospital. With a Foreword by Sir Robert Jones, Bart., K.B.E., C.B., F.R.C.S. London and New York: Humphrey Milford, Oxford University Press. 1929. Price \$4.15.

This short volume is intended by the author as a sort of scout for the larger textbooks on orthopedics. Its main object is to stimulate general practitioners and all who are associated with

infant welfare work to search for signs of commencing deformity in infants under their care.

The orthopedic surgeon rarely sees the types of cases referred to, in the very early stages when they are most amenable to curative treatment.

The skeleton is gone over systematically, from the neck to the feet, and the conditions which suggest an actual deformity or promise a later one are described and suitable measures for their correction outlined.

School physicians and infant welfare workers, as well as general and family physicians, should find this a useful book assisting in the prophylaxis of deformities.

### Morley: Hemorrhoids

**HAEMORRHOIDS.** Their Aetiology, Prophylaxis and Treatment by Means of Injections. By Arthur S. Morley, F.R.C.S., Eng., Late Temporary Assistant Surgeon to St. Mark's Hospital for Cancer Fistula, and Other Diseases of the Rectum. Fourth Impression, Revised and Enlarged. London and New York: Humphrey Milford, Oxford University Press. 1929. Price \$2.00.

Quite a number of books on the treatment of hemorrhoids have appeared recently. The present small volume gives a very lucid description of these annoying and very common excrescences, in their various manifestations.

The author strongly favors the injection method of treatment. Indeed, the book may be considered as written especially to familiarize practitioners with this method, and it is a good exposition for any doctor who wants such information. There is no padding, and the technic is given in detail.

### David: Emergency Treatment in Internal Medicine

**DRINGLICHE THERAPIE IN DER INNEREN MEDIZIN.** Von Dr. Werner David. Berlin & Wien: Urban & Schwarzenberg. 1929. Price Mk. 2.

Many books have been written on emergency surgery, but the reviewer cannot recall one on the emergencies of internal medicine. Yet every practitioner must always be ready to do something immediately in a dozen different emergencies which he is called upon to deal with.

This is only a small book but it tells just what to do in such cases and will be appreciated by those who read German.

### Bennett: Nephritis

**NEPHRITIS.** Its Problems and Treatment. By T. Izod Bennett, M.D. (London), F.R.C.P., Physician with Charge of Out-Patients, Middlesex Hospital; etc. London and New York: Humphrey Milford, Oxford University Press. 1929. Price \$1.85.

This is a monograph based on three lectures given by the author, in which uremia, edema and hypertension were discussed. With certain additions, these lectures have been worked into the

present book. The author thinks that the unsolved problems of nephritis must be approached by the study of disorders of function, as revealed by clinical and laboratory investigations. Gross anatomic studies of the kidneys have failed to furnish a key.

### Vanderbilt University School of Medicine

**METHODS AND PROBLEMS OF MEDICAL EDUCATION.** (Thirteenth Series.) New York: The Rockefeller Foundation, 61 Broadway. 1929. Gratis on request.

The Thirteenth Series of Methods and Problems of Medical Education, prepared and published by the Rockefeller Foundation, is entirely devoted to a complete description of the Vanderbilt University School of Medicine, Nashville, Tenn.

This series of monographs is intended for the information and guidance of those interested in practical medical education and the articles and information contained in them are derived directly from those responsible for the actual departments described. The value of such publications is quite obvious.

### Dorland: Medical Dictionary

**THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY.** By W. A. Newman Dorland, A. M., M.D., F.A.C.S., Lieut.-Colonel, M.R.C., U. S. Army, Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association. Fifteenth Edition, Revised and Enlarged. With the Collaboration of E. C. L. Miller, M.D., Professor of Bacteriology and Biochemistry, Medical College of Virginia. Philadelphia and London: W. B. Saunders Company. 1929. Price \$7.00.

For many reasons Dorland's is the most acceptable American medical dictionary. Its definitions, pronunciations, etc., may be considered as representing the custom of the best informed persons and, therefore, become standard by the test of the approval of the best.

In this fifteenth edition the dictionary has been entirely overhauled and the type reset. Thousands of new words have been added; the accepted terminologies of various scientific bodies have been used; and the form and pronunciation of new words, or of newer combinations of old words, standardized as sanctified by the usage of acceptable authorities.

The size of the volume makes it convenient for a desk reference book. The paper is thin but opaque. The type is legible. It is the standard adopted by CLINICAL MEDICINE AND SURGERY.

### Report of Medical Dept. United Fruit Company

**SEVENTEENTH ANNUAL REPORT OF THE MEDICAL DEPARTMENT OF THE UNITED FRUIT COMPANY.** General Offices, Boston, Mass. 1928. Gratis on request.

The Annual Report for 1928 of the Medical

Department of the United Fruit Company offers, as usual, some very interesting reading. Among other matters the Report gives in detail the methods adopted for the control of malaria, and the satisfactory results show what can be accomplished by systematic treatment and inculcating prophylactic education among the people.

Another interesting feature is the results obtained by antivenin treatment of snake bites. This Company has made a special study of this problem, with the result that there is now scarcely a fatal case among its employes following bites from poisonous reptiles.

A number of cases are included in the Report which will be of interest to those engaged in the study of tropical diseases.

### Abel: Esophageal Obstruction

**ESOPHAGEAL OBSTRUCTION.** Its Pathology, Diagnosis and Treatment. By A. Lawrence Abel, M.S. (Lond.), F.R.C.S. (Eng.), Assistant Surgeon to the Kensington General Hospital; Assistant to the Woolwich War Memorial Hospital; Surgeon to the London Lock Hospitals. New York: Oxford University Press. 1929. Price \$9.00.

This volume should be a welcome addition to the library of, not only the gastroenterologist, but anyone who is interested in general medicine, because the general practitioner and diagnostician, as well as the surgeon, will find in it a complete resumé of the affections of the esophagus.

The work is divided into seventeen chapters, has two hundred twenty-four pages and a well systematized index. The bibliography is thorough and succeeds each chapter. The illustrations are excellent.

The chapters on simple stricture of the esophagus and cancer of the esophagus, by themselves, are well worth the price of the volume.

The systematic manner in which the author has approached the subject, and the discussion of the various aspects of esophageal diseases are admirable. The treatment of morbid conditions of the esophagus is thoroughly depicted, as well as described.

The colored plates are a splendid addition to the book and show the reflections of esophageal lesions as seen through the esophagoscope.

On the whole, the efforts of the author and the result of his labors have been crowned with success. The book will fill an important niche in the library of the progressive medical man.

M. T.

### Barwell: Diseases of the Larynx

**DISEASES OF THE LARYNX.** Including Those of the Trachea, Large Bronchi, and Esophagus. By Harold Barwell, M.B. (Lond.), F.R.C.S. (Eng.), President of the Section of Laryngology, Royal Society of Medicine; Consulting Surgeon for Diseases of the Throat and Ear to St. George's Hospital; Etc. Third Edition. London and New York: Humphrey Milford, Oxford University Press. 1928. Price \$3.65.

This short treatise on laryngology, originally published more than twenty years ago, has now run into its third edition. It was intended by

the author, who is a leading British laryngologist, as a practical manual suitable for the general physician and surgeon as well as for the student.

In the earlier editions, endoscopy received but slight attention. The improved methods of endoscopy, including suspension laryngoscopy, are well described in this edition. Other features of interest are the chapters dealing with tuberculosis of the larynx and with tumors, both benign and malignant.

All that a general practitioner should know about the commoner diseases of the throat is given in concise and plain descriptions, with such illustrations as are necessary.

### Transactions of College of Physicians

**TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.** Third Series, Volume the Fiftieth. Printed for the College. 1928. GRATIS.

The fiftieth volume of the third series of the transactions of the College of Physicians of Philadelphia contains the papers read before the College during the year 1928, including those of special sections; also special information concerning the functioning the College. Many of the most important of these papers have also been published since in current medical journals.

### Medical Clinics of North America

**THE MEDICAL CLINICS OF NORTH AMERICA.** Boston Number. Volume 13, Number 1, July, 1929. Philadelphia and London: W. B. Saunders Company. Issued serially, one number every other month. Per Clinic year, July, 1929, to May, 1930: Paper \$12.00; Cloth \$16.00.

The July, 1929, number of the Medical Clinics of North America is devoted to papers from Boston clinics, 22 contributions in all.

While all are of practical value, the following papers seem to be of most interest to the practitioner, from the clinical point of view: "Some of the Causes of Difficult, Noisy and Rapid Respiration in Infancy and Early Childhood," by Dr. J. L. Morse; "Aneurism of the Thoracic Aorta," by Dr. Wm. H. Robey; "Physical Illness as an Etiologic Factor in Psychoneurosis," by Dr. Geo. P. Reynolds; "The Nature and Management of Cerebral Hemiplegia in Patients with Arterial Hypertension," by Dr. S. Weiss; "The Treatment of Eclampsia," by Dr. F. C. Irving; "Thrombo-Angiitis Obliterans," by Drs. H. Linenthal and M. E. Barron; and "Subacute Bacterial Endocarditis," by Dr. L. J. Ullian.

### Surgical Essays (Orthopedics)

**THE ROBERT JONES BIRTHDAY VOLUME.** A Collection of Surgical Essays. New York: Oxford University Press. 1928. Price \$13.00.

Sir Robert Jones, veteran orthopedist and acknowledged leader of the British Orthopedic School, has reached his seventieth year and his friends, colleagues and admirers in many lands have seized the occasion to honor him by contributions to a birthday volume of surgical essays.

The work of Sir Robert Jones is well known to orthopedists on this side of the Atlantic. No better tribute can be paid to it than that which appears in the preface of this book from one of the leading British surgeons, Sir Berkeley Moynihan, a life-long friend: "In the last thirty years I have seen many surgeons in many lands. I have seen none who, in mastery of technique, manipulation, judgment, and care for the individual has surpassed Sir Robert Jones".

The essays contributed number twenty-four. They are original presentations, mostly depicting some particular clinical feature of the special work in orthopedics associated with the writers. The United States are represented by Osgood, of Harvard, who writes on sacro-iliac arthritis, and Alison, of the Massachusetts General Hospital, whose contribution deals with the open operation for congenital dislocation of the hip.

Besides the leading British contributors, such as Little, Hey Groves, Platt, Alwyn Smith, Wheeler, etc., there are several foreign contributors. Putti, of Bologna, one of the world's foremost orthopedists writes on tumor of the femur; Jansen, of Leiden, Holland, on bone growth; Starr, of Toronto, on acute infections in bone, and Calvé, of the Hôpital franco-américain, France, on infantile osteochondritis.

Altogether, apart from its associations, this collection of surgical essays is a notable one and surgeons should find it a pleasure as well as a benefit to possess a copy. The book is well printed and bound and amply illustrated. It is a tribute worthy of him to whom it is made and of those who make it.

### Corbus & O'Connor: Diathermy

DIATHERMY IN THE TREATMENT OF GENITO-URINARY DISEASES WITH SPECIAL REFERENCE TO CANCER. By Budd C. Corbus, M.D., F.A.C.S., Past Professor of Genito-Urinary Diseases in the University of Illinois College of Medicine; and Vincent J. O'Connor, S.B., M.D., Assistant Professor of Genito-Urinary Surgery in the University of Illinois College of Medicine. Revised Edition. Illustrated. St. Paul and Minneapolis: The Bruce Publishing Company. 1929. Price \$5.00.

Diathermy, the heating of resisting conductors through which an electric current passes, is scarcely a quarter of a century old as a therapeutic method. Diathermy applied to human disease by the application of high-frequency currents, is credited to d'Arsonval.

The authors were among the pioneers in the United States in applying medical and surgical diathermy to diseases of the genito-urinary tract. Their book aims to show definitely and clearly the tremendous value of diathermy in the treatment of such conditions. By the thermaphores specially devised by one of the authors and technical methods devised by the other they claim to have realized most excellent results. Gonococci can be destroyed and gonorrheal infections, urethritides, prostatitides, epididymites, etc., with a

degree of heat not exceeding 108°F., which comes within the scope of medical diathermy. For the destruction of tumors, including such lesions as tumors of the urinary bladder, degrees of heat up to 150° can be produced, obtaining electrocoagulation.

In the treatment of tumors the authors claim better clinical results from diathermy than from surgery. This is especially the case with malignant tumors; but they are careful to point out that in the conditions in which surgery is clearly indicated and possible it is to be preferred. Perhaps the most decided advantage of surgical diathermy over plain surgery in the treatment of malignant tumors is the lessened liability to recurrence.

The authors' clinical results in the treatment of gonorrhea, both in the male and female, appear to warrant their enthusiasm for treatment by diathermy, especially since excellent results also are reported by many others throughout the country who are using similar methods.

The volume, though small, contains all the essential information which should be requisite to any urologist who desires to be fully acquainted with diathermy. The technic is clearly illustrated.

### Respiratory Disease and Gas Gangrene

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. Volume XII, Pathology of the Acute Respiratory Diseases and of Gas Gangrene Following War Wounds. Prepared under the Direction of Maj. Gen. M. W. Ireland, The Surgeon General, by Maj. George R. Callender, M.C., and Maj. James F. Coupal, M.C. Washington: Superintendent of Documents, U. S. Government Printing Office. 1929. Price \$3.60.

Volume XII of the "History of the Medical Department of the United States Army in the World War" is devoted to the pathology of the acute respiratory diseases and of gas gangrene following war wounds.

The pathology of acute respiratory diseases is based especially on the observations and reports made in the various camps during the mobilization periods, and the most important of these dealt with the perplexing problems presented by the epidemics of influenza. Some of these reports have already been published in various medical journals, but the subject is presented here as a collected whole.

The pathology of gas gangrene following war wounds has been studied mainly from specimens in the Army Medical Museum and from the official reports furnished to the Medical Department by medical officers of the American Expeditionary Forces, as well as from medical literature.

This volume is very rich in fine illustrations, many of them printed in colors and all well reproduced. The volume is an invaluable record of the diseases with which it deals.

# MEDICAL NEWS



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## Surgeon General of the Navy

Captain Charles E. Riggs, U. S. N., commander of the Naval Hospital at Washington, D. C., was recently appointed Surgeon General of the Navy (with the rank of Rear Admiral), relieving Rear Admiral Stitt, who went to the Pacific Fleet.

## Clinical Congress of the American College of Surgeons

The nineteenth annual Clinical Congress of the American College of Surgeons will be held in Chicago, October 14 to 18, inclusive. Headquarters will be at the Stevens Hotel, where a number of important meetings, including the annual Hospital Conference, will be held.

Among other interesting and helpful features will be evening meetings, at which distinguished American and foreign surgeons will give addresses; the premier show-

ing of several surgical moving picture films; a cancer symposium; etc.

The actual clinical program, which includes work in surgery of the eye, ear, nose and throat, is extremely large and varied, and will be staged at practically every recognized hospital in the city.

This is a remarkable opportunity to attend what will be perhaps, the greatest clinical congress in medical history. For full particulars, address The American College of Surgeons, 54 E. Erie St., Chicago, Ill.

## Location in Illinois

For a young physician interested in a country practice which will begin to pay at once, there is an opening in Illinois. The investment required is small. For full particulars, write to Dr. Geo. E. Hendrickson, Coulterville, Ill.

## Military Surgeons to Meet

The Association of Military Surgeons of the United States (to which all holding commissions in the Medical Corps of the Regular Army, the National Guard and the Organized Reserves are eligible) will hold its annual meeting this year in Denver, Colo., September 19 to 21.

Full particulars, as to membership and this meeting, may be obtained by addressing the Association at 7th and B Sts., S.W., Washington, D. C.

## Instruction in Physical Therapy

A course of instruction in Physical Therapy, sponsored by the American Electrotherapeutic Association and the Western Association of Physical Therapy, will be conducted in Indianapolis, Ind., Sept. 9 and 10, 1929. The list of instructors promises well. For full information and registration blanks, address Dr. C. C. Vinton, Secty., 47 Willow St., Brooklyn, N. Y.



Dr. Herbert Charles Clark.

### Gorgas Memorial Laboratory of Tropical Medicine

In commemoration of the tremendous benefits conferred upon the tropical countries of the Western Hemisphere by the work of Dr. William C. Gorgas, the Republic of Panama has presented to the Gorgas Memorial Institute a beautiful and well equipped institution for research in the problems of tropical medicine. It is situated in the City of Panama, is known as The Gorgas Memorial Laboratory of Tropical Medicine, and was dedicated April 2, 1929.

The director of this Laboratory is Dr. Herbert Charles Clark, formerly of the United Fruit Co. The work of the institution will be supported by the United States by an annual appropriation of \$50,000, approved by the President, May 7, 1928. The first problems to be studied will be the cure of malaria and the extermination of mosquitoes.

### American X-Ray Corporation

Two well known manufacturers of physical therapy apparatus, the Acme-Intern-

tional X-Ray Co., of Chicago, and the Engeln Electric Co., of Cleveland, have recently been united and will be known as the American X-Ray Corporation. Leonard A. Busby, president of the Chicago city railways, has been chosen as president of the new organization.

### United States Civil Service Examinations

The United States Civil Service Commission announces the following open competitive examinations:

#### *Physiotherapy Aide*

Applications must be on file with the Commission at Washington, D. C., not later than September 10.

*Associate Medical Officer*

*Assistant Medical Officer*

*Chief Nurse (Indian Service)*

*Head Nurse (Indian Service)*

*Graduate Nurse (Various Services)*

*Graduate Nurse, Visiting Duty (Various Services)*

*Graduate Nurse, Junior Grade (Various Services)*

*Occupational Therapy Aide*

*(Arts and Crafts)*

Applications must be on file with the Civil Service Commission at Washington, D. C., not later than December 30.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

### Some Interesting Articles

The September *Medical Pocket Quarterly* is just out and contains some interesting articles, among them, "Health Audits and How to Make Them," "Furniture for the Mental Sitting-Room," "Why the Physicians' Credit Bureau," "Tempering the Wind to Father" and several others. It will be sent free on request by Reed and Carnrick, Jersey City, N. J.

# Send For This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., CLINICAL MEDICINE AND SURGERY, North Chicago, Ill., will gladly forward request for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our readers may use these numbers and simply send requests to this magazine. Our aim is

to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

When requesting literature, please specify whether you are a doctor of medicine, dentistry, medical student, a registered pharmacist, or a nurse.

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| U- 2 Your Prestige and Profit. 8-page booklet. The Carroll Dunham Smith Pharmacal Co.     | U-116 Hemo-Glycogen, The New Product Hemoglobin Compound and Liver Extract. Chappel Bros., Inc. |
| U- 3 Storm Binder and Abdominal Supporter. 4-page folder by Dr. Katherine L. Storm.       | U-120 Building Resistance. William R. Warner & Co., Ltd.  |
| U- 5 Ethical Medicinal Specialties. 8-page booklet. A. H. Robins Co.                      | U-156 Siomine (Methenamine Tetraiodide). Pitman-Moore Company.                                  |
| U- 17 An Index of Treatment. Burnham Soluble Iodine Co.                                   | U-169 The Quartz Lamp, August 15, 1929. Hanovia Chemical & Mfg. Co.                             |
| U- 45 Vera-Perles of Sandelwood Comp. Paul Plessner Co.                                   | U-176 The Hormone, 24 pages and cover, published bimonthly. The Harrower Laboratory             |
| U- 47 Campho-Phenique in Major and Minor Surgery. Campho-Phenique Company.                | U-189 High Blood Pressure — Treatment with Theocalcin. E. Bilhuber, Inc.                        |
| U- 49 The Calcreose Detail Man. Maltbie Chemical Co.                                      | U-194 Fracture Book—1928 Edition. DePuy Mfg. Co.  |
| U- 50 Outwitting Constipation. Standard Oil Co.   | U-196 "Facts Worth Knowing." Intravenous Products Co. of America, Inc.                          |
| U- 56 Regaining Health. How Science Can Guide You! The Fleischmann Company.               | U-197 Bulletin. Illinois Post Graduate Medical School, Inc.                                     |
| U- 85 Ultraviolet for Health. Hanovia Chem. & Mfg. Co.                                    | U-211 The Etiology and Treatment of Hay Fever—Hay Fever Antigens. The National Drug Co.         |
| U- 95 Everything for the Sick. Lindsay Laboratories.                                      | U-222 Autumn Leaves — Guaitonic. Wm. R. Warner & Co., Inc.                                      |
| U-103 The Electron, August, 1929. McIntosh Electrical Corporation.                        | U-227 The Romance of Digitalis. The Hoffmann-La Roche, Inc.                                     |
| U-112 Atophan after more than Fifteen Years of ever expanding use, etc. Schering & Glatz. |   |

- U-228 Ye Olden Day Cough Physic. The Tale of a Drug which Columbus gave to Isabella. The Hoffmann-La Roche, Inc.
- U-233 Gland Tidings. G. W. Carnrick Co.
- U-235 A Real Problem Solved (Clinical Medicine). The Health Cigar Co.
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